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CALIFORNIA AND WESTERN MEDICINE

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CONTENTS AND SUBJECT INDEX

EDITORIALS:

Greetings for the Christmas Season and New Year....393

C. M. A. Questionnaires: On Tax-Supported Hospitals and Medical Services....394

Referendum on Proposed Qualifying Certificate (Basic Science) Initiative Law for California....395

Questionnaire Poll of California Physicians: On Health Insurance....395

Tribute to Los Angeles Nurses by President Franklin D. Roosevelt....396

Sylvatic Plague in California....396

Corporations Cannot Practice Medicine in California....397

EDITORIAL COMMENT:

Dangers of Skeletal Traction. By Francis M. Findlay, Santa Barbara....397

The Treatment of Fractures of Femoral Neck. By Don King, San Francisco....398

Infant Feeding. By Oscar Reiss, Los Angeles....399

ORIGINAL ARTICLES:

Sylvatic Plague in California. By K. F. Meyer and B. Eddie, San Francisco....399
Discussion by H. E. Hasseltine, Bristol, Vermont.

Air-Conditioning. By M. N. Hosmer, San Francisco....405

Poliomyelitis. By Beatrice F. Howitt, San Francisco....407
Discussion by K. F. Meyer, San Francisco.

The Rôle of the Urethra in Female Urology. By William E. Stevens, San Francisco....411
Discussion by Edward W. Beach, Sacramento; F. S. Dillingham, Los Angeles; James Steinberg, Los Angeles.

Compression Fractures of the Spine. By Wayland A. Morrison and Richard J. Flamson, Los Angeles....416
Discussion by Francis M. McKeever, Los Angeles; Howard W. Fleming, San Francisco; Arthur L. Fisher, San Francisco.

Intestinal Obstruction: A Roentgen and Statistical Study. By John F. Chapman, Pasadena....419
Discussion by R. R. Newell, San Francisco; L. H. Garland, San Francisco; John H. Breyer, Pasadena.

The Treatment of Varicose Ulcer and Veins. By John M. Schmoele, Los Angeles....423
Discussion by Nelson J. Howard, San Francisco; E. Vincent Askey, Los Angeles; Norman J. Kilbourne, Los Angeles.

Pigmentation of Metabolic Origin: Its Relation to the Autonomic Nervous System. By Irving Bancroft, Los Angeles....425
Discussion by H. P. Jacobson, Los Angeles; Sophie A. Lurie, Los Angeles; George V. Kulchar, San Francisco.

Results of Treatment of Congenital Luetics with Bismuth Arsphenamine Sulfonate (Bismarsen) for Five Years. By William Anthony Reilly, San Francisco....429
Discussion by Hartzell H. Ray, San Mateo; Merlin T.-R. Maynard, San Jose; Stanley O. Chambers, Los Angeles.

THE LURE OF MEDICAL HISTORY:

Diseases of the Indians of Lower California in the Eighteenth Century. By S. F. Cook, Berkeley....432

CLINICAL NOTES AND CASE REPORTS:

Epithelioma of Scalp. By George J. Heppner, San Francisco....434

Benign Hypertrophic Prostate. By Charles C. Falk, Jr. Eureka....435

BEDSIDE MEDICINE:

Carcinoma of the Cervix of the Uterus....437
Discussion by Orville N. Meland, Los Angeles; George S. Sharp, Pasadena; Robert S. Stone, San Francisco; Verne C. Hunt, Los Angeles.

STATE MEDICAL ASSOCIATIONS:

CALIFORNIA MEDICAL ASSOCIATION....444
Minutes of Council Meeting, November 2, 1935....446
C. M. A. Department of Public Relations....451
The Woman's Auxiliary to the California Medical Association....452

NEVADA STATE MEDICAL ASSOCIATION....453

MISCELLANY:

News....454
Letters....457
Special Articles....459
Twenty-Five Years Ago....464
Board of Medical Examiners of the State of California....464
California Medical Association Directories....Adv. pages 2, 4, 6
Book Reviews....Adv. page 11

ADVERTISEMENTS: (Index)....Adv. page 8

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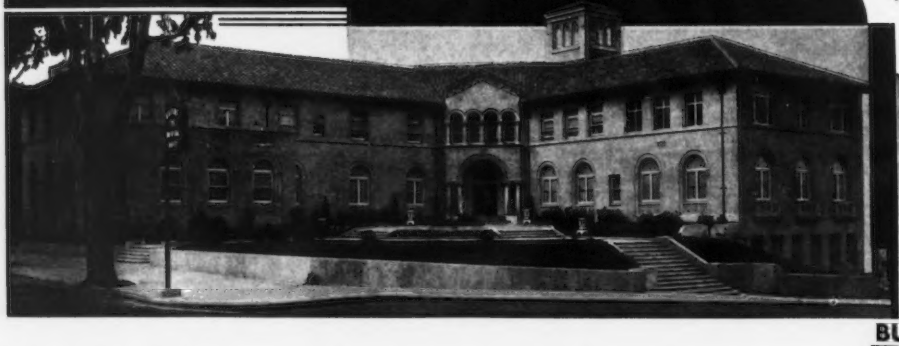

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CALIFORNIA AND WESTERN MEDICINE

OFFICIAL JOURNAL OF THE CALIFORNIA AND NEVADA MEDICAL ASSOCIATIONS

VOL. 43 DECEMBER, 1935 NO. 6

California and Western Medicine

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EDITOR . . . . . GEORGE H. KRESS

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Responsibility for Statements and Conclusions in Original Articles.—Authors are responsible for all statements, conclusions and methods of presenting their subjects. These may or may not be in harmony with the views of the editorial staff. It is aimed to permit authors to have as wide latitude as the general policy of the journal and the demands on its space may permit. The right to reduce or reject any article is always reserved.

Contributions—Exclusive Publication.—Articles are accepted for publication on condition that they are contributed solely to this journal.

Leaflet Regarding Rules of Publication.—CALIFORNIA AND WESTERN MEDICINE has prepared a leaflet explaining its rules regarding publication. This leaflet gives suggestions on the preparation of manuscripts and of illustrations. It is suggested that contributors to this Journal write to its office requesting a copy of this leaflet.

DEPARTMENT INDEX

(Itemized Index of Articles is printed on Front Cover)

	PAGE
Editorials	393
Editorial Comment	397
Original Articles	399
Lure of Medical History	432
Clinical Notes and Case Reports	434
Bedside Medicine	437
California Medical Association	444
C. M. A. Department of Public Relations	451
Woman's Auxiliary to C. M. A.	452
News	454
Letters	457
Special Articles	459
Twenty-five Years Ago; State Examining Board	464
Roster of State and County Society Officers	Adv. pp. 2, 4, 6
Index to Advertisements	Adv. p. 8

EDITORIALS†

GREETINGS FOR THE CHRISTMAS SEASON AND NEW YEAR

Official Journal Joins with President Robert A. Peers and Officers in Extending Season's Greetings.—CALIFORNIA AND WESTERN MEDICINE, as the official publication of the California and Nevada Medical Associations, voices its good wishes for joyous Christmas days and a happier New Year to each and every member of these two state medical societies.

Such wishes must always be associated with happiness that accompanies interesting and joyful occupation; for work is a blessed thing, and especially so, when of a kind such as the important and, ofttimes, vital personal service constantly being rendered to lay fellows by the men and women who make up the profession of medicine. But even those who thus work must also live, in order to serve to best advantage.

Since 1929, the economic depression has measurably affected world governmental and other policies, resulting in radical changes and departures from previously-accepted outlooks and standards. Inspection of charts and the figures of board of trade organizations, and also welfare bodies, shows how great have been these variations in many lines of activity.

Sickness and death statistics, however, during the last six years of economic and other changes have not greatly altered, and it follows, therefore, that physicians are today doing practically the same amount of professional work as before the onset of the present "hard times." Unfortunately, too, the money compensation received for services generously rendered, when charted, reveals a curve far from alluring: frequently much below what it should be, and only too often inadequate for the professional work done.

When, then, in contrast, one reflects upon the evidence of easy money, as seen in high prices and yet the comparatively enormous attendance at such places of entertainment as theatres and football games, and even in cafes and shops that purvey personal apparel and accessories, the thought arises that somewhere, somehow, in these troublous times, thousands of lay citizens, not

† Editorials on subjects of scientific and clinical interest, contributed by members of the California Medical Association, are printed in the Editorial Comments column, which follows.

altogether without means, have assumed a new attitude toward their physicians: they seem to believe that medical attention and protection should come to them at little or no cost. In any event a large number of persons apparently think that financial accounts due physicians can be put aside for consideration only after the desires for all other personal comforts, such as clothing and automotive pleasures, have been fully gratified.

All of which makes for hardship to physicians and their own families. It is much to the credit of medical men and women, therefore, that, under these adverse and disheartening conditions, there has been no letting-down in the quantitative or qualitative character of services rendered to lay fellows, although many times physicians have known beforehand that, for much of their work, there will be little recompense other than thanks, and in some cases, perhaps, not even that. However, this very knowledge of duty well done should afford physicians, everywhere, real Christmas cheer. And as for the New Year of 1936, it is to be hoped that it will bring far more remunerative and happier days, than has been experienced by thousands of medical men and women in the last five or six years.

So again, at this festive time, CALIFORNIA AND WESTERN MEDICINE, on behalf of all the members of the California and Nevada Medical Associations, takes pleasure in extending, for the coming season of Merry Christmas, the customary greeting to every other member, and also in expressing the heartiest wishes for prosperity and happiness in the coming New Year.

C. M. A. QUESTIONNAIRES: ON TAX-SUPPORTED HOSPITALS AND MEDICAL SERVICES

Special Committee Appointed to Collect Needed Information: Component County Societies Should Respond Promptly.—CALIFORNIA AND WESTERN MEDICINE, in its issue for July, 1935, printed the minutes of the Yosemite session of the House of Delegates, and, on page 62, a resolution introduced by Dr. L. A. Packard of Kern County, providing for the appointment of a special committee to study and report on tax-supported hospitals and medical services in California.

This special committee, consisting of Dr. Axcel E. Anderson of Fresno, Councilor of the Fourth District, chairman; Dr. Louis A. Packard, Bakersfield, secretary, and Dr. E. Earl Moody, Los Angeles, has sent to each component county medical society in California three questionnaires containing in all a total of ninety-one different questions. Depending upon population and other local conditions, regarding some of the questions submitted, pages could easily be written. And, we may add, such reports would redound to the profit of both investigators and hearers.

* * *

Questionnaires Are Printed in This Issue.—The complete questionnaires appear in this issue (page 459).

These blanks were sent to county society secretaries, and request was made that each component county unit deputize a committee to promptly gather the needed facts and figures for its respective district; and it is to be hoped that every society has at least done that much to forward the work.

Each member of the California Medical Association should appreciate the importance of cooperating with the State Association Committee in securing this much-needed information, which has such an intimate relationship to trends in present and future private practice.

An inspection, indeed, of the questions, reveals the magnitude of the important work which the committee is trying to do. Without any desire to criticize, it may be stated that if a poll of the five thousand members of the California Medical Association were to be taken on their ability to answer the queries with even an average degree of accuracy, it is doubtful if more than one member in five, or ten, would be able to qualify. Yet the economic, professional and social welfare facts desired should be familiar to every practicing physician. It may be added that, in similar problems before business organizations, it is quite probable that not 10 or 20 per cent, but 70 to 80 per cent of the members would be able to qualify. Business men make it their business to attend to their business!

* * *

Members Are Urged to Study the Questionnaires.—Members are urged, therefore, to read the questionnaire's queries as presented on the page cited above. They are worthy of perusal because they are thought stimulating, and their consideration will make for alertness in observation of the activities mentioned. Owing to the individualistic nature of medical practice, mass observation and study (with unity of thought on matters affecting the profession, but outside the limits of private professional work), is to be noted only on those rare occasions when a special menace confronts medical practitioners. Even within the ranks of organized medicine, the number of members in a county medical society who consistently maintain an active interest in problems of general medical policy is quite limited.

* * *

County Societies and Members Should Cooperate with the Committee—Doctors Anderson, Packard and Moody, having prepared such excellent questionnaires on matters of vital importance, should receive a wholehearted support in their efforts to gather long-lacking, but much needed information concerning tax-supported hospitals and medical activities; in keeping with which the Council expresses the wish that every component county society will do its part. If action has not already been taken by any local society, and a suggestion is in order, it may be recommended that at the next meeting these questionnaires be read and commented upon, question by question. Such an informal exchange of opinion

would be as valuable as a scientific paper, and quite as enlightening; since members would then better appreciate the bigness and the importance of this study—which the House of Delegates at this year's Yosemite session instructed the State Council to submit to the component county societies.

REFERENDUM ON PROPOSED QUALIFYING CERTIFICATE (BASIC SCIENCE) INITIATIVE LAW FOR CALIFORNIA

Proposed Qualifying Certificate Law Was Considered in the November Issue.—The first editorial in last month's CALIFORNIA AND WESTERN MEDICINE discussing some of the provisions in the draft of a qualifying certificate (basic science) law, as referred to the Council of the California Medical Association by its special committee, contained the essential sections of a proposed law to be submitted to the electorate as an initiative on the ballot sheet of the November, 1936, state election.

At the meeting of the Council held in San Francisco on November 2, when a report was made by the special committee concerning the procedures necessary in the submittal of an initiative, the best methods of obtaining the requisite 200,000 signatures were explained, and also the expenses involved, inclusive of the publicity needed to insure the passage of such a law.

The report was carefully considered by the Council, as noted in Item 15 of the Council minutes printed on page 448 of this issue. At Yosemite, in May of the present year, the House of Delegates had cast a unanimous vote in favor of a qualifying certificate (basic science) law, which endorsement in itself was construed as a mandate to the Council. However, because of the amount of expense involved, the Council felt that it would be proper to give the 5,000 members of the Association an opportunity to express their personal reactions to the proposed law; and by unanimous vote of the Council, a referendum to the membership was ordered, the time fixed for closing the ballot being two weeks after the date of mailing. The referendum postcard contained an announcement and a return ballot card, reading as follows:

CALIFORNIA MEDICAL ASSOCIATION
450 Sutter Street
San Francisco, California

REFERENDUM NO. 1

November 12, 1935.

To Association Members:

The Council, conforming to a resolution of the 1935 House of Delegates favoring a Qualifying Certificate (Basic Science) Act, has received the report of the Special Committee on this Act, commented upon in the November CALIFORNIA AND WESTERN MEDICINE (on page 321).

The Council now submits to all members the question as to whether it shall direct the Committee to draft a law, secure the necessary signatures to an initiative petition, and attempt to secure enactment of the law by initiative ballot at the November 1936 election.

Time is important. Members are urged to register their desires by an immediate return of the attached card.

Signed: THE COUNCIL OF THE CALIFORNIA MEDICAL ASSOCIATION,
Robert A. Peers, President
F. C. Warnshuis, Secretary

George H. Kress, Committee Chairman.

California Medical Association, Referendum. 1935

REFERENDUM NO. 1

To the Council:

I record my answer to the Referendum.

Do you favor that the Council shall instruct the Association's special committee to secure a Qualifying Certificate Law by initiative at the 1936 November election, and to that end expend for signatures, postage and clerical expenses approximately $35,000 of the Association's reserve funds? Yes ☐ No ☐

Signed.....

Address.....

County.....

Detach and Mail Before November 16, 1935

* * *

Results of the Referendum Vote Not Known at This Writing.—At the time of this writing, we do not know the trend of the voting. If the members vote in favor of submitting such an initiative law in November, 1936, the special committee, under the direction of the Council, will proceed with promptness in the preparation of the final draft of the law, and will take the other necessary steps to give it a place on next year's state election ballot sheets. If, however, the members do not vote in favor of submitting such an initiative law at the present time, the special committee and Council will continue their studies of the subject for report to the House of Delegates at the San Diego meeting in May, 1936.

* * *

Later: The Association Members Cast a Five to One Vote in Favor of the Qualifying Certificate Initiative.—On the day the galley proofs of the December issue reached the editor, he received a letter from Association Secretary Warnshuis that the vote (with more than 2,000 ballots cast), was running about five to one in favor of a qualifying certificate law. It may be of interest, also, that in these first ballots that were cast, the proportion in favor in Los Angeles County was as 13 to 1, in Alameda County, as 4 to 1, and in San Francisco County as 3 to 1.

QUESTIONNAIRE POLL OF C. M. A. MEMBERS: ON HEALTH INSURANCE

California Medical Association Takes a Poll of Physicians on the Subject of Health Insurance.—Item 9 of the Council minutes of its November 2 meeting mentions the attendance of a committee from the Sacramento Society, whose members, at the September 7 meeting of the Council, were requested by the Council to present a questionnaire relating to the taking of a poll of all licensed physicians in California holding

the M. D. degree, as to their approval or non-approval of certain types of health insurance.*

The text of a questionnaire post card (not yet mailed at this writing) has been prepared and may contain the following queries:

1. Shall the California Medical Association endorse any legislative change in the present system of medical practice? *Yes. No.*

(If your answer to No. 1 is "No," do not answer No. 2 and No. 3.)

2. Are you in favor of compulsory health insurance? *Yes. No.*

3. Are you in favor of voluntary health insurance? *Yes. No.*

(If your answer to No. 3 is "Yes," answer (*a*), (*b*), and (*c*).

(*a*) Voluntary health insurance under a plan carried on by the State of California? *Yes. No.*

(*b*) Voluntary health insurance carried on by lay companies under legislative control? *Yes. No.*

(*c*) Voluntary health insurance carried on by some form of organization of licensed physicians of California created by legislation? *Yes. No.*

4. Are you a member of the California Medical Association? *Yes. No.*

* * *

A Full Vote Should Be Cast.—What the ballots will reveal to the officers and members of the California Medical Association, we do not know. The attention of members is called to the questionnaire because it is important that as large a vote as possible may be secured. The officers of the Association should certainly know the reaction of its members, and, in the present instance, also the points of view of licensed doctors of medicine in California who do not hold membership in the California Medical Association. Members are urged to send in their ballots, after receiving and considering the questionnaire, as promptly as possible.

TRIBUTE TO LOS ANGELES NURSES BY PRESIDENT FRANKLIN D. ROOSEVELT

A Deserved Tribute.—In a recent conference, Dr. George Parrish, Health Officer of the City of Los Angeles, showed the editor a copy of the letter given below, in which President Franklin D. Roosevelt, himself a victim, as is well known, of poliomyelitis, pays deserved tribute to those who, like good soldiers, in the outbreak of that disease in Los Angeles County, in 1934, bravely carried on their duties in the Los Angeles County Hospital at great risk to themselves; an important suggestive fact attested by the large number of nurses still invalided.† CALIFORNIA AND WESTERN MEDICINE gladly reproduces in facsimile President Roosevelt's words of appreciation, and commends their consideration to the Honorable Board of Supervisors of Los Angeles; for today that Board has the responsibility as well as the power of properly caring for those afflicted nurses who, in a time of exceptional stress, and under most overcrowded and disheartening conditions, rendered such valiant service to the citizens of Los Angeles County.

The letter of President Roosevelt is as follows:

THE WHITE HOUSE
WASHINGTON

October 30, 1935.

My dear Doctor Parrish:

It has just come to my attention that some thirty-eight nurses, victims of an infantile paralysis epidemic in Los Angeles, are being cared for in the Los Angeles General Hospital and in the hospital of Physicians and Surgeons in Glendale. My heart goes out to these young sufferers — living martyrs to their unselfish devotion to the nursing profession. I should greatly appreciate it if you would convey to each of them an expression of my fellow feeling for them in the sacrifice they have made and are making.

Any words of mine seem feeble indeed in the face of their affliction; and yet, I cannot restrain the impulse to record my appreciation of their heroism. Because of their suffering the suffering of others was alleviated. They will ever be held in honored reverence for their unselfish ministrations.

Very sincerely yours,

Franklin D. Roosevelt

Doctor George Parrish,
Health Officer of the City of Los Angeles,
116 Temple Street,
Los Angeles, California.

SYLVATIC PLAGUE IN CALIFORNIA

Distribution of Plague Among Wild Rodents of the Pacific Coast.—In the current number of CALIFORNIA AND WESTERN MEDICINE appears an article by Dr. K. F. Meyer, Director of the Hooper Foundation for Medical Research, University of California, in which he outlines, in quite an interesting manner, how far afield—both geographically and scientifically—the investigations of the distribution of Bacillus pestis infection have taken both Federal and State health authorities. In previous issues this subject has been considered several times, references to articles in this JOURNAL having been printed on page 265 of the May, 1934, magazine; the June number of the same year containing an article on "Selvatic Plague—Its Present Status in California"—a paper submitted at that time in response to our request.

In the article by Meyer and Eddie on page 399, the authors use the preferential spelling, "sylvatic" of the Oxford Dictionary instead of "selvatic"; the word sylvatic or selvatic referring to plague as found in wild rodents, in contrast to plague as observed in rats, domesticated as it were, in rural or urban centers of human population.

* See October issue, page 305, item 27, and this issue, page 447, item 9.

† See November issue, on page 388, for letter of District Nursing Association, regarding stipends and care given to nurses still incapacitated because of poliomyelitis.

Sylvatic Plague as Found in California Counties: Kern, Tulare, Modoc, Lassen and San Luis Obispo.—The authors' discussion of the rather extensive distribution of sylvatic plague in different districts of California might be alarming were it not for the fact that, at the same time and in these same infested districts, only two human cases of plague were seen in 1934, and none, thus far, in 1935. The Federal, State and other authorities, upon whom devolves the responsibility of combating the spread of plague among the wild rodents (squirrels, rats and mice)—for it is from these lower animal reservoirs that an extension into populated districts may come—are to be congratulated for their careful studies concerning the foci of infected areas, and on the means taken to bring about the limitation and eradication of the disease. It must be remembered that the complete list of animals (mammals) that can act as supplementary hosts to the Bacillus pestis is yet to be worked out, although the authors call attention to instances pointing to cottontail and jack rabbits as belonging to the group of supplementary hosts.

* * *

Why This Report on Sylvatic Plague Is of Significance.—Meyer and Eddie's report of the studies and surveys of sylvatic plague in California makes interesting reading for physicians, and especially so, when the serious outbreaks of human plague in California—San Francisco, 1900 to 1904 (bubonic plague); San Francisco and Oakland, 1907 and 1908 (bubonic plague); Oakland, 1919 (pneumonic plague); and Los Angeles, 1924 (pneumonic plague)—are kept in mind.

In the present era of generous spending by the Federal Government on survey projects of all kinds, it would seem quite proper that some funds were allocated to carry on investigations and studies making possible for the United States Public Health Service and the California State Board of Health to possess more extensive and accurate knowledge of this disease; which knowledge, should the plague again break out in metropolitan centers such as the San Francisco Bay region or Los Angeles, may well be of great value to help prevent immediate money loss running into hundreds of thousands of dollars, with however, remote ill results of even greater amount. It is gratifying to know that in spite of somewhat limited funds and personnel it has been possible to make so careful a survey and report as that which is printed in this issue.

CORPORATIONS CANNOT PRACTICE MEDICINE IN CALIFORNIA

Opinion of Judge C. J. Goodell of San Francisco.—In last month's issue, on page 324, comment was made on the opinion recently handed down by the Hon. C. J. Goodell of the Superior Court of the City and County of San Francisco, in which that jurist reaffirmed the legal principle that corporations cannot practice medicine in California. Through Dr. C. B. Pinkham, secretary of the Board of Medical Examiners of the State of California, we have been able to secure a copy of Judge Goodell's memorandum-opinion and this will be found in the Special Articles section on page 460.

Its perusal, in connection with the opinion rendered by the Hon. Charles E. Hughes, Chief Justice of the Supreme Court of the United States, given on page 389 of last month's issue, is commended to all members of the California Medical Association.

* * *

Opinion of Judge Hartley Shaw on Chiropractic-Naturopathic.—In the same Special Articles department of this number is also printed an illuminating opinion concerning some legal limitations of chiropractic and naturopathic practice. Readers of this journal may find that opinion likewise of interest. (See page 463.)

Other State Association and Component County Society News.—Additional news concerning the activities and work of the California Medical Association and its component county medical societies is printed in this issue, commencing on page 444.

EDITORIAL COMMENT†

DANGERS OF SKELETAL TRACTION

The appearance upon the market today of numerous pieces of excellent apparatus for the treatment of fractures justifies a word of warning against the indiscriminate use of skeletal traction by every doctor who has purchased one of these new gadgets.

No one will deny that great progress has been made in the treatment of fractures during the past decade. The World War demonstrated the value of immediate splinting and early traction in fractures of the long bones, and popularized the now indispensable Thomas splint. The more liberal use of the roentgen ray, the organization of fracture clinics in our large teaching hospitals with their follow-up clinics, the demands of industrial insurance carriers for less permanent disability from fractures and the growing menace of malpractice suits, have all contributed to this keener interest on the part of the profession and have resulted in better treatment of fractures.

Better mechanical aids were a natural outgrowth of this widespread interest in the fracture problem. It is more generally appreciated now than formerly that restoration of normal anatomical relationship is desirable, and that it usually results

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† This department of CALIFORNIA AND WESTERN MEDICINE presents editorial comment by contributing members on items of medical progress, science and practice, and on topics from recent medical books or journals. An invitation is extended to all members of the California and Nevada Medical Associations to submit brief editorial discussions suitable for publication in this department. No presentations should be over five hundred words in length.

in earlier union of the bone, and better and fuller function of the injured extremity. Few conscientious men are now content with poor anatomical reduction of a major fracture.

Skeletal traction has been the inevitable outcome of this desire to obtain anatomical reposition of the bone fragments. The heavy ice-tongs and Steinman pins, popular a few years ago, have in large measure been replaced by the lighter piano wire, introduced by Kirschner, with its minimum amount of foreign body. Several ingenious mechanical devices that are a great aid in the reduction of fractures of the long bones have recently appeared and are now flooding the market. Some of these are based on sound principles and possess real merit. In the hands of an intelligent and mechanically minded doctor such apparatus is a great aid in obtaining mechanical reduction of difficult fractures of the long bones.

The average doctor, however, especially in the smaller cities and towns, when shown this type of apparatus by a clever salesman, is soon convinced that he can solve all his fracture problems. The commercial exhibits at the state medical meeting remove all doubts as to the necessity of this type of treatment and the doctor buys a skeletal traction apparatus. He forgets that, as the late Dr. E. H. Nichols so aptly stated, the problem is more than that of gluing a broken chair-leg, for the skin, muscles, nerves, blood vessels, and lymphatics surround the bone, and frequently the soft tissue injury transcends in importance the injury to the bone.

It must not be forgotten, too, that the use of skeletal traction converts a simple fracture into a compound one, and enough emphasis is not being placed today upon the dangers inherent in the method. Doctors must learn that pins and wires should not be inserted indiscriminately through injured tissues, and that strict attention must be given to skin antisepsis. If skeletal traction is to be used, it must be constantly kept in mind that no foreign body should be inserted into any bone without adequate skin sterilization. Pins and wires should go through normal, healthy tissue, and never be inserted into devitalized, traumatized tissue. Antitetanic and gas gangrene serum should always be given, as in any compound fracture.

Within the past year the writer has seen two unfortunate results from failure to observe the fundamental surgical principles in the use of skeletal traction. One patient with a comminuted fracture of the os calcis, accompanied by considerable bruising and abrasions of the soft tissues of the lower leg and foot, had a steel wire inserted through the devitalized, ecchymotic area within twelve hours of injury. No attempt was made to reduce the fracture by manipulative means, and insufficient time was given for the soft tissues to regain their normal state. Severe infection developed, with sloughing of most of the tendons of the lower leg and foot, accompanied by an osteomyelitis of several bones of the foot. The osteomyelitis is still active ten months after the injury.

The other patient, who had a simple fracture of both bones of the forearm, had skeletal traction inserted without adequate skin preparation or the use of anaerobic serum. Gas gangrene developed, and amputation of the right arm above the elbow was necessary to save the patient's life.

Skeletal traction, when properly applied, is a great aid in replacing and holding fractured bones in anatomical position. Its dangers must be recognized and sound principles not forgotten, or disaster will result.

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THE TREATMENT OF FRACTURES OF THE FEMORAL NECK

The management of central or intracapsular fracture of the femoral neck will always be difficult, because of the age at which they occur and the great tendency to nonunion.

The old policy of neglecting the fracture, to "save the patient," would seem to defeat the very purpose for which it is employed. The severe and constant pain produced by movement in the fracture, inflicted upon an already feeble patient, often produces a degree of exhaustion which readily leads to pneumonia.

Primary shock having been alleviated, immediate reduction and adequate retention is imperative. The necessary manipulation, consisting of traction, abduction and internal rotation (Whitman), can usually be done under local or spinal anesthesia. A properly applied plaster cast, cut away in front to the anterior superior spines laterally, and to the symphysis medially, allows the patient to assume a semi-sitting position, to exercise and be turned on his sides or abdomen at regular intervals. An almost immediate cessation of pain is the gratifying and important result. Check-up x-rays should include a lateral study in addition to the usual posterior stereo.

This method of treatment represents a great advance over the "neglect the fracture, save the patient" régime, but has the disadvantages of prolonged immobilization and an incidence of nonunion of about 50 per cent.

It is now some ten years since Smith-Petersen of Boston devised his triflanged metal pin for fixation of these fractures. His original technique for placing the pin necessitated wide exposure of the hip-joint, thus limiting its field of usefulness. Sven Johansson of Göteberg has recently suggested an extra-articular method of placing the pin, which is so simple and atraumatic that it can be used on the feeblest of patients.

The patient is placed on the orthopedic table, spinal or local anesthesia given, the fracture reduced in the usual way and x-rays taken. The great trochanteric region is exposed through a short incision parallel to the shaft, and two or three stainless steel wires are introduced in a horizontal plane so angled as to pass through the neck into the head. Posterior and lateral

x-rays are now taken, and if improperly placed, the wires are withdrawn and reintroduced. A Smith-Petersen nail, with a canalized head, is now threaded on to the most appropriately placed wire, and driven into the neck and head of the femur. The three flanges on the pin necessarily prevent rotation of the fragments and are so thin that necrosis of the cancellous bone does not occur. Postoperative fixation in plaster is unnecessary.

Active motion of hip- and knee-joints can be started in a few days, and the patient gotten up on crutches in an incredibly short period of time.

Up to the present time, Smith-Petersen* has applied his original method of treatment and the Johansson method to seventy unselected patients, their ages varying from ninety-two to fifty years. At the present time firm bony union with good function has been obtained in 70 per cent of cases.

It can be truthfully stated that progress is being made in the treatment of fractures of the neck of the femur.

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INFANT FEEDING

During the past ten years the undersigned has noted with dismay and trepidation the increasing extent to which the general practitioner is recommending the use of various proprietary foods for the infant. While he has no fault to find with many of these foods, he fears that too many of his colleagues prescribe them without a definite knowledge of their composition or their particular applicability to a given feeding problem.

Under the circumstances, he thinks it is perhaps opportune to again direct attention to certain fundamental qualities that must be considered in the evaluation of any infant food:

1. The food should be palatable.
2. It should be clean: (*a*) Free from dirt. (*b*) Free from pathogenic organisms. (*c*) Reasonably free from nonpathogenic organisms.
3. It should be suited to the digestive tract of the infant.
4. It should contain in ample quantity the important elements necessary for the growth and development.
5. It should not be easily contaminated after delivery for use.
6. It should be within the purchasing power of the consumer.

The doctor, in attempting to select a food for the infant, should possess definite criteria by which he may form some judgment as to the value of any and all foods. In the undersigned's opinion any food that meets the standards above set forth is a suitable food for the infant.

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OSCAR REISS,
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* Personal communication to the author (July, 1935).

ORIGINAL ARTICLES

SYLVATIC PLAGUE IN CALIFORNIA*

DISCUSSION OF ITS EXTENT IN THE YEARS 1934 AND 1935

By K. F. MEYER, Ph.D.
AND
B. EDDIE, M.A.

DISCUSSION *by H. E. Hasseltine, M.D., Bristol, Vermont.*

IN a previous report [1] certain phases of the plague problem as they affect California have been briefly sketched. Although subsequent developments to be detailed have clearly pushed a number of persistent questions into the foreground and have, in part, changed the outlook, the B. pestis infection of wild rodents continues to play the leading rôle in the Pacific States of the Union. Despite a widespread reservoir of rodent disease, only two (possibly three) human cases of plague have been recognized in 1934, and none in 1935. Obviously, the interest must by necessity focus on the disease in the rodents. Without an adequate understanding of this infection, it will be impossible to forecast the future developments and to institute protective measures of value. There is certainly no need to proclaim in sensational statements the prevalence of so-called "bubonic plague" in the West. Such designations convey to the medical and non-medical reader the idea that human plague, "the fearful unknown," has assumed undue proportions. This is decidedly contrary to facts.

The interdependence of rodents to human plague is fully known and amply appreciated. In fact, the various possibilities have been previously mentioned and illustrated by examples chosen from the plague history of California. In order to guide future investigations and to inform those immediately concerned with the various problems, it is deemed appropriate to review the observations made during the past twelve months. Thus, an opportunity may be afforded to outline some of the studies which should be undertaken. The reservoir of plague sustained by fleas is either in the wild rodents or in the rat population. By custom and tradition, the B. pestis infection among the domesticated representatives of the rodent family "muridae" is always described as rat plague. On the other hand, a similar malady among the species belonging to families sciuridae, heteromyidae, muridae, caviidae, and jaculidae is known as wild rodent plague, or preferably termed, *sylvatic plague*.† [2]

* From the George Williams Hooper Foundation, University of California, San Francisco.
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† This descriptive word first proposed by Jorge as "peste silvatique" (Off. Int. d'Hyg. Publ. 19: 1287, 1927), or "peste selvatique" (Off. Int. d'Hyg. Publ. 19: 1271, 1927 and 25: 450, 1933), was then adopted by Stallybrass (The Principles of Epidemiology, London, p. 310, 1931) as "selvatic" plague. According to the Oxford dictionary, the designation sylvatic or silvatic (also selvatick, after the Italian word, "selvatico"), must be given preference over the word, "selvatic," which has priority right.

Since mammals other than squirrels have been found to harbor virulent plague bacilli, the designation "squirrel plague" is fully inadequate. It will be the task of future investigators to study the epidemiology [not epizoötiology, see Taylor [3]] of B. pestis infection throughout the susceptible animal kingdom. By stressing the squirrel as the principal or sole host, the investigations of the past have probably overlooked many significant phases. Even a superficial inspection of the list of rodents known to suffer from spontaneous plague other than the domestic rat and mouse, as published by Wu Lien Teh,[4] emphasizes the diversity of hosts for the plague bacillus. In South Africa at least nineteen different rodents have been spontaneously found to be plague-infected.[5]

THE SITUATION IN 1934 IN KERN AND TULARE COUNTIES

In 1933 the State Department of Public Health was advised concerning an increased mortality among squirrels in the Lynn Valley near Glenville, Kern County. During July and September, 1,083 squirrels were killed by the survey crews in the suspected area, but the cause of the mortality was not determined at that time. In March, 1934, the owners of ranches lying in an area of six square miles, both in Kern and Tulare counties, approximately thirty miles north and east of Bakersfield, and approximately sixteen miles east of Delano, Kern County, noted a great many dead squirrels. An immediate survey by the plague crew established, by gross and laboratory examinations, the existence of acute septicemic and subacute sylvatic plague. In Kern County, during the months from March till June, 5,317 squirrels (4,022 shot; 1,279 dead) were dissected, and plague was demonstrated in 118 (2.2 per cent). No infection was recognized in 500 rats trapped in and around Bakersfield. In Tulare County 4,075 (3,148 shot; 927 dead) squirrels were examined and plague lesions with positive cultural findings established in ninety-three (2.9 per cent). Kangaroo rats (168) that had been poisoned were found to be non-infected. Throughout the area surveyed, the squirrel population was very heavy. As a result of the survey activities, which covered approximately 2,421 square miles or 1,528,440 acres, it is believed that the plague-infected area lies between the following geographic landmarks:

Beginning eleven miles north of Bakersfield it extends in the north several miles within the Tule River Indian Reservation; on the east inside the United States Forest Reserve, approximately thirteen miles east of Granite Station, spreading toward the west within two miles west of Jasmine Station. The territory covers approximately 896 square miles or about 553,440 acres. The Agricultural Commissioners, in coöperation with the State Department of Agriculture, the United States Forestry Service, and the United States Biological Survey, instituted well-planned and extensive control measures covering an area of approximately 1,267 square miles. A resurvey made in July has shown that the squirrel population throughout the entire area has been greatly reduced, and the menace to Public Health has been, for the time being, practically eliminated.

In June, 1934, a ten-year-old schoolboy from Porterville visited a ranch (ten miles beyond White River in Posy Creek Country) on which plague-infected squirrels had been found, and contracted bubonic plague. He died from chronic plague meningitis on September 22, 1934. This observation leaves no doubt that chronic latent plague may occur in man, and thus suggests a number of very important inquiries into the human carrier problem.

The investigators, who have analyzed the outbreak of sylvatic plague in this new area, are of the opinion that the infection was spread through the migration of diseased squirrels from the mountain regions to the lowlands, and contact with the highly susceptible young squirrel population developed the 1934 epidemic. For many years similar outbreaks of rodent mortality, though not so severe as the one of 1934, have been reported to have occurred in the mountain sections in both Kern and Tulare counties. The nature of these deaths has never been proved, but it is reasonable to suspect sylvatic plague. Future surveys in the foothills of the Sierra Nevada, and in particular a study of the immunity of the rodents for plague, will furnish data to support or refute this interpretation which has been given to the event of 1934.

THE SITUATION IN 1934 IN MODOC COUNTY

Representatives of the United States Biological Survey engaged in the distribution of poison on Government lands in Modoc County observed dying and dead squirrels on ranches north and east of Alturas. A survey, made early in June, 1934, proved the existence of plague-infected squirrels in the Joseph Creek district, Fandango Valley, and the Fort Bidwell Indian Reservation. In an area of approximately 65,000 acres, fourteen new plague foci were located. The examination of 971 Oregon ground squirrels [(Citellus oregonus Merriam), 519 shot, 270 found dead, and 182 poisoned] revealed fifty, or 5.1 per cent, infected with B. pestis. One rodent presented lesions of tularemia. One of six wood rats (Neotoma ?) presented an acute plague infection. Since the rodents resumed hibernation, further investigations had to be deferred until spring, 1935. A protective area of about 256,000 acres was outlined, and control activities were carried out under a coöperative arrangement between the United States Biological Survey, the United States Forestry Service, the State Department of Agriculture, Modoc County, and the land owners. The recognition of an entirely new focus of sylvatic plague in the northern-eastern section of California, and in a new species of squirrels (Citellus oregonus), was decidedly alarming. Inquiries have disclosed the interesting fact that at periodic intervals over many years, epidemics have appeared in the squirrels of Modoc County. A high mortality has also been noted in the state of Nevada. The bacteriological confirmation of a case of human

plague at Lake View, Oregon (May 16, 1934), supports the reports that squirrel plague has existed for some time in the southern part of Oregon. In the past, the epidemic mortality among squirrels was attributed to tularemia, and consequently systematic investigations were not instituted. The surveys thus far failed to indicate the routes which introduced sylvatic plague into Modoc County. It is not unlikely that the invasion occurred from the North and is in no way connected with the principal area of squirrel plague south of the San Francisco Bay region (Sacramento) located in the Coast Ranges. In any event, the Modoc focus has apparently no relationship to the Tulare-Kern squirrel epidemic.

OBSERVATIONS IN 1935

In April, 1935, shortly after the first squirrels returned from hibernation, the survey activities were resumed in Modoc County. New areas of sylvatic plague were recognized in localities which extend from the city of Alturas on the east to Canby Bridge on the west, and extend over a district of approximately twenty-three miles in length and an average width of three miles. The area in which infected rodents were found covers 132,840 acres; in general, it is level and consists, in some instances, of meadow and cultivated land. It is bordered on the north and south by brush-covered, rolling hills. The population is concentrated chiefly in Alturas (approximately two thousand persons) and Canby (approximately fifty). The remainder of the area is very sparsely settled and contains probably not over thirty-five inhabitants. An area of 254,440 acres was carefully surveyed by the plague investigation crew, and a total of 6,311 squirrels and other rodents have been autopsied. Plague lesions with positive cultural and animal findings were made on 107 Oregon squirrels, four wood rats, and one field mouse. In the infected area, 1,492 squirrels [1,424 shot; 68 dead exclusive 198 carcasses (undoubtedly dead from plague)] were autopsied and sylvatic plague established in 107 [7.1 per cent (inclusive carcasses—18 per cent)]. Aside from plague, tularemia was recognized in a squirrel shot at Perez Station (thirty-nine miles northwest of Auturas-Modoc National Forest). A survey of the areas recognized as plague foci in 1934 failed to indicate a recurrence of the disease among rodents.

As soon as the existence of sylvatic plague had been proved, the Agricultural Commissioner, in coöperation with the State Department of Agriculture, the United States Biological Survey, and the United States Forest Service, instituted active control measures. A five-mile squirrel-free zone was created around the cities of Alturas and Canby. In this connection, it is of interest to note that a careful investigation disclosed a complete absence of rats in the city of Alturas. The hazard of urban plague conveyed by wild rodents through the agency of rats is, therefore, non-existent.

Already, in 1934, it was observed that the abandoned homes, mostly wooden shacks or cabins, invariably housed a diverse fauna of dead and living rodents. Careful inspections have, therefore, been made and valuable as well as suggestive findings have been secured. For example, in a cabin located on the F. L. B. ranch, twelve miles west and four miles south of Alturas, a fresh carcass of a male white-footed field mouse (*Peromyscus truei gilberti*) was found with lesions of plague (liver necroses, and pleural effusions) and cultural findings of B. pestis. A subsequent inspection disclosed seven dried-up carcasses of the same species in the nests. Judging by the location and appearance of the mummified mammals, the reasonableness that these rodents died from plague is great. Eight guinea-pigs, exposed as flea sentinels two months after the discovery of the infected mouse, remained well for a period of three weeks. No fleas were found on the guinea-pigs at the time of autopsy.

In another cabin located on an infected ranch near Rattlesnake Creek, carcasses of meadow mice, white-footed mice, wood rats, and cottontail rabbits were located under circumstances which strongly suggest sylvatic plague as the cause of death.

Equally significant are the observations made in a test-tunnel excavated in connection with an irrigation project of the South Fork Water District on the D. R. V. L. ranch in the West Valley, near Likely. A dead female wood rat (*Neotoma cinerea occidentalis*) found in this structure presented the lesions of acute plague, and a strain of B. pestis highly virulent for guinea-pigs and rats was isolated. The three baby wood rats found beside the mother were not infected. On the Morgan ranch, three miles north and four miles west of Adin, 50 per cent of the Oregon squirrels were found to be infested with a trichocephalid nematod (Hepaticula hepatica).

LASSEN COUNTY

As a sequel to the interest which was created by the intensive survey and control activities in Modoc County, a number of ranchers reported the finding of dead Oregon squirrels in various small valleys located in the northern section of Lassen County. These meadow lands are orographically connected with the sylvatic plague foci of Modoc County. Thus far, 35,840 acres have been surveyed and in a series of 198 squirrels examined, three (1.5 per cent) were found infected with B. pestis. Sylvatic plague has, therefore, been proved to exist in the Chase and the Ash valleys. Further surveys are in progress and will be required for several seasons in order to establish the extent of sylvatic plague in this county. In any event, it is important to realize that, with the advance of the survey activities in a southerly direction, new foci have been recognized. Certain important observations made in the Ash Valley will be reviewed below. The districts proved to harbor infected squirrels have been the subject of thorough control measures.

SAN LUIS OBISPO COUNTY

This county has been infected for many years; between January, 1927 and 1930, forty plague-infected squirrels were found on various ranches.

Active control measures carried on by county and state officials were effective, and no plague-infected rodents were discovered between 1931 and April, 1935, when one infected squirrel at autopsy revealed typical plague lesions with positive bacteriologic findings. Intensive hunting operations failed to demonstrate further infection on the same area, but located one infected Citellus on another ranch.

On May 23, 1935, an inspector ran across an intermediate wood rat (*Neotoma lepida intermedia* Rhoads) which apparently had died shortly before it was found. On autopsy, the pleural cavities contained considerable fluid and the inguinal lymph nodes were enlarged and injected. A pure culture of B. pestis, which was highly invasive for rats and guinea-pigs, was isolated. This accidental finding of a new species of wood rat in the acute septicemic stage of plague at the head of the Garcia Canyon, which connects the ranch proved infected in April, is of more than passing interest in the light of the observations made in Modoc County. Although the territory was thoroughly searched by trapping 110 wood rats and twenty-eight field mice, the survey even failed to find additional infected rodents. Again, attention must be called to the lack of knowledge concerning the mechanism of spread and persistence of sylvatic plague in the rodent population of California. Indeed, it is imperative that some steps be taken to determine, if in any way practical, the various mammals which serve as supplementary host for the B. pestis. It is well known that the young California ground squirrels migrate locally so as "to establish new homes for themselves." These relatively limited excursions can hardly explain the gradual invasion of sylvatic plague into remote new localities. On the other hand, mass migration of mice and rats under adverse environmental conditions are by no means uncommon and have been reported. However, no accurate information concerning this important phase of sylvatic plague in California is available.

OREGON AND MONTANA

The United States Public Health Service has conducted systematic surveys in the State of Oregon. According to recent published reports[6] plague infection was proved in the Columbia and Oregon squirrels (Citellus oregonus and Citellus columbianus) found dead or shot (?) in Wallowa and Grant counties, Oregon. Of greatest importance is, unquestionably, the demonstration of plague in a ground squirrel received from Dillon, Beaverhead County, Montana.

Thus, sylvatic plague has crossed the Pacific States and has appeared in the Rocky Mountain States. How far it has traveled in an easterly direction has not as yet been determined. The surveys in this direction will be awaited with interest.

SPECIES OF RODENTS INFECTED

Through the cordial coöperation of Mr. E. T. Ross, Chief, Bureau of Sanitary Inspection, and his investigators who are attached to three fully equipped field laboratories, carcasses of rodents other than squirrels have been submitted for identification[7] and for study of plague infection. Despite the fact that the intensive operations in Modoc and Lassen counties merely permitted a humble attempt to investigate spontaneous plague in rodents other than Oregon squirrels, the results have been very valuable. Three new species of rodents have been conclusively proved to be spontaneously infected with B. pestis. They are:

1. Gilbert white-footed mouse, *Peromyscus truei gilberti* (Allen), Modoc County.

2. Western bushy-tailed wood rat, *Neotoma cinerea occidentalis* (Baird), Modoc County.

3. Intermediate wood rat, *Neotoma lepida intermedia* (Rhoads), San Luis Obispo County.

In this connection it is recalled that McCoy and Smith[8] recognized, as early as 1910, the wood rat (Neotoma fuscipes) to suffer from spontaneous plague. Experimentally, the same workers have proved the susceptibility of other rodents.

During an inspection tour, the presence of an unusually large number of carcasses of jack or cottontail rabbits in an area known to be heavily seeded with sylvatic plague attracted attention. Unfortunately, the remains of these Leporidae were unsuitable for bacteriologic investigations. Since tularemia is quite common in Modoc and Lassen counties, it is reasonable to associate the rabbit mortality with this malady. However, this explanation is not applicable to the situation in the Garcia Canyon. Further studies are obviously in order.

INAPPARENT PLAGUE IN SQUIRRELS

In a series of sixty-four Oregon squirrels submitted by the investigation crew, forty-six were found naturally infected with plague. Of these, thirty-two had been found dead, while fourteen had been shot. In using the classification originally established by McCoy,[9] the thirty-two dead squirrels revealed the lesions of acute plague; two of the shot rodents were also in an acute stage of the disease, while the remaining twelve indicated their infection by subacute tissue changes. Necrotic areas in the lymph nodes, with occasional necroses in the liver, were the only noteworthy markings. The suggestive microscopic findings were invariably confirmed by cultures on blood-plates and subsequent agglutination tests with a highly potent rabbit B. pestis antiserum. In case these procedures failed to yield a pathogenic microörganism, the tissues were pocketed in guinea-pigs. Thus, two squirrels were proved to harbor the plague bacillus although, microscopically and culturally, the tissues appeared to be free from these bacteria.

While surveying the suspected areas in Lassen County, the investigation crew shot, in the Ash Valley, thirty-six squirrels. A personal postmortem examination by one of the authors (K. F. M.) led in the Oregon squirrel to the recognition of a form of plague thus far not recorded in connection with the plague studies in California.

The carcasses were in an excellent state of nutrition; the subcutaneous tissue was not injected, and the liver, spleen, and lungs were grossly

normal. There was, however, a generalized slight lymphadenopathy. The inguinal, iliac, axillary cervical, submaxillary, and even the mediastinal lymph nodes, were slightly enlarged, firm and grayish in color. Necroses or suppurative lesions were entirely absent. Even serial sections failed to reveal minute focal inflammatory reactions. Microscopically, either no bacteria or a few rods (contaminants) were seen; the cultures revealed cocci, diphtheroids, and occasional B. coli. The blood serum failed to agglutinate a strain of B. pestis isolated in the same region. In a series of three squirrels selected for further study, a guinea-pig, which received segments of the lymph nodes of one squirrel, subcutaneously, died ten days later with gross lesions of plague. The cultures prepared from the heart-blood and spleen were mixed with various organisms. A fragment of the guinea-pig's spleen was, therefore, rubbed on the skin of a second animal. It died on the fourth day with the lesions of plague, and a pure culture of B. pestis was isolated and identified from the heart-blood.

The customary routine examination of the carcasses, and the usual laboratory tests would have classed this squirrel as non-infected. At the present stage of the plague investigations, this error is of little consequence, since in the area in which squirrels with inapparent plague were recognized, two rodents with definite acute and subacute plague had been autopsied. Furthermore, the magnitude of the task to locate and to delimit the infected areas throughout the State imposes on the investigation crews and the laboratory such a burden that refinements in study must be reserved for a period when more money and assistance are available. The accidental discovery of latent plague—a stage in which the plague bacillus leads a symbiotic existence in the squirrel host—is, however, of great scientific interest for the following reasons:

(*a*) Inapparent plague, or a B. pestis infection without visible lesions, was first established for the rat by McCoy, then by Williams [10] and, according to Long,[11] in South America has also been recognized by Nicaronoff [12] in the susliks of South Russia. This form of plague is probably the continuation of acute plague and may perhaps help to preserve the virus during the off-seasons. However, the majority of investigators maintain that "carriers" of plague, or even rats with resolving lesions, are *per se* of no importance in spreading the infection. On the other hand, the period of hibernation to which some wild rodents suffering from natural plague are subjected, is an indispensable link for the preservation of both the plague bacillus and the species. Recent studies by Russian plague experts,[13] and in particular by Wu Lien-Teh on the Siberian tarabagan, leave no doubt that the malady is carried along from season to season through latent infections. Susliks (Citellus fulvus) and tarabagans inoculated with virulent plague bacilli before hiberation may survive and harbor the bacilli at the site of inoculation or in the regional lymph nodes. Apparently, the physiologic inactivity during hiberation is holding the virus in abeyance. Since the Oregon squirrel hibernates for at least six months, it is not unlikely that the same mechanism may be operative. The entire subject of latent squirrel plague deserves careful experimental study.

(*b*) In view of the finding of plague in mice, the recognition of "carriers" by Koltzov,[14] who grew B. pestis from the organs though no macroscopic signs were noticeable, is equally of interest.

(*c*) McCoy [15] has shown that the healthy squirrels in sylvatic plague-stricken localities were found quite resistant to infection with B. pestis, while in plague-free areas the rodents were uniformly susceptible. This immunity may mean a gradual extinction of the disease, or the partially resistant latent infected race of rodents may perpetuate the disease for many years. It is, therefore, not difficult to understand why plague persists among the California rodents.

(*d*) Finally, the recognition of a partial immunity, as indicated by instances of inapparent plague in certain localities, may furnish some leads relative to the origin and the past history of sylvatic plague in the Warner Mountains of northern California. Until the susceptibility of the Oregon squirrels to plague has been studied, it is probably inappropriate to speculate, although the recognition of latent squirrel plague on the Alpine meadows of Lassen County suggests that the disease has prevailed for many years. In fact, it may have existed "in the hill tracts" from time immemorial. Just as the endemic foci of wild rodent plague in the vast Central Asian plateau escaped recognition until quite recently (1907 and 1911), so the existence of a disease in the rodents of Modoc County would have remained unknown without the operation of fortuitous circumstances. In a sparsely populated country the accidental human infections are so rare that the existence of the virus may remain unrecognized even to the most advanced public health organization. The student of plague history may find fascinating analogies between the old and present plague foci. He doubtless will not dismiss entirely the thought that the Asiatic plateau, the original home of plague, was once linked via the Behring Straits, the Aleute Chains and Kuro-Schivodrift and, therefore, geomedically connected the transference of contagious diseases with the North American Continent. Furthermore, he is doubtless familiar with the controversies pro and contra, the endemicity of plague in Aestrakhan-Persian focus. For a long time Russian observers contended that plague in those regions was imported, and blamed the pilgrims, the camels, and even water-fowls devouring plague-sick rats and harboring their fleas temporarily, for the outbreak of bubonic plague. However, it was finally ascertained that three species of rodents, a spermophilus, a large jerboa, and a microtus, were the actual carriers of plague. Finally, the student will appreciate that actual facts relative to sylvatic plague in the Pacific Coast states are quite meager and, consequently, are readily made the subject of unwarranted speculation by those who are not familiar with the epidemiology of animal diseases.

PROBLEMS TO BE INVESTIGATED

Foregoing observations have shown that protective and eradicative measures instituted by the California State Department of Public Health, and the State Department of Agriculture, have accomplished the desired goal—prevention of human plague. However, in order to protect localities and counties from a progressive invasion of sylvatic plague in a manner like that which has happened in South Africa, it is imperative that carefully planned investigations and research be instituted at an early date. Among the many problems which suggest themselves, one may mention a few:

(*a*) Ascertain the various wild rodents involved in sylvatic plague and the rôle played by each.

(*b*) Study the part played by the different species in (1)perpetuating and (2) spreading plague infection.

(*c*) Careful survey of rodents and their habits as regards burrowing, nesting, migration, and emigration; variations owing to droughts, etc.

(*d*) Fleas and ectoparasites of rodents and associated animals.

(*e*) Life history and bionomics of different species under natural conditions; breeding and feeding habits.

(*f*) Conditions favoring flea multiplication and prevalence; hibernation and migratory habits from deserted burrows.

(*g*) Mechanism of persistence of plague infection.

(*h*) Serum reactions in rodents.

(*i*) Comparative experimental susceptibility to plague of various rodents and associated animals.

(*j*) Mechanism of natural infection; number of flea bites required to produce infection; types of disease; period of infectiveness and latency.

(*k*) Natural enemies of rodents; methods of encouraging multiplication.

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DISCUSSION*

H. E. Hasseltine (Medical Director, United States Public Health Service, Bristol, Vermont).—The authors have given a comprehensive presentation of plague activities in California in 1934 and 1935. It was my privilege to have visited the Kern-Tulare, Modoc-Lassen, and San Luis Obispo areas when the California State Department of Public Health was carrying on its investigations. The extent of the infection in these areas has been stated by the authors, but there are many features that cannot be adequately comprehended until they are seen personally. The terrain includes flat-tilled, or tillable, land, some of which has growing crops upon it; rough and rocky foothills; and mountainous regions, with steep slopes and numerous canyons. Parts of the plague-infected areas are on irrigated lands, while other parts are on drought-stricken pastures, where it hardly seems possible for any animal to live.

In spite of all these conditions the California State Department of Public Health, the State Department of Agriculture, and the United States Biological Survey, working in coöperation, have produced excellent results in the Kern-Tulare area, as shown by a resurvey in 1935. I feel that they will show equally good results in the Modoc-Lassen area when a resurvey is completed there. In this latter area they are limited to a comparatively short season of active operations, due to the hibernating habits of the Oregon ground squirrel.

In the plague-infected areas described in the paper presented, it will be noted that rodents found dead from some unexplained cause have played a major rôle in the discovery of the infection. From reports of unexplained mortality in rodents the United States Public Health Service have come the clues that led to the discovery of rodent plague in Oregon and Montana. Herein lies a lesson for the medical profession. When rodents die from unknown cause in any community the medical profession should remember that possibly the epizoötic may be due to a cause that may also infect man. The profession, therefore, should at least report it to their health authorities, or perhaps send specimens to a well-equipped laboratory, with as complete information as they can gather. I might go even further by saying that such reports need not be limited to rodents. In recent years we have added to our list of diseases of man a considerable number that infect one or more species of lower animals. It serves as a reminder that man is but another species belonging to the animal kingdom. Any unexplained unusual mortality in any animal species is worth investigating.

The authors refer to the numerous rodents found in and around abandoned buildings. In California there are many such buildings in rural sections, and such buildings increase the hazard of rodent-borne diseases to all who may occupy them temporarily in time of storm or other emergency. Particularly does this apply to sheep herders, cattle men, and sportsmen.

The list of problems submitted in the last paragraph of the paper indicates the vast field that rodent plague offers to the investigator. We have recently obtained information that causes us to question some of our former conclusions as to plague infection in rodents, and suggest the desirability of again going over the same ground in the light of recent findings. Our investigations in Oregon, as well as those in northeastern California, indicate that rodent plague has been present there for a considerable, but unknown, period. About twenty years ago Modoc County was surveyed, with negative results. Was the infection there in an inapparent or latent state and missed by the investigators, or has it been introduced since? If the latter, whence did it come and how did it travel? The answer to these and many other similar questions will require prolonged and painstaking investigations along many lines of research.

* See also in this issue, page 458 for letter from Doctor Hasseltine, and list of references to plague articles.

AIR-CONDITIONING*

ITS RELATION TO UPPER RESPIRATORY INFECTIONS

By M. N. Hosmer, M.D.
San Francisco

THE subject of air-conditioning has become a popular one in recent years, but, strangely enough, its popularity has been developed by ventilating engineers and not by physicians. From a technical standpoint I think it should still belong to the engineers, because the complex formulae they must use in solving difficult problems would baffle most of us. I do believe, however, that we should become more familiar with what is being done so that we may assist in the proper installations for various conditions.

EARLY OBSERVATIONS ON AIR-CONDITIONING

The first experimental work on air-conditioning was done in 1750 by Pilcet, who showed that the breathing of air by animals reduced the oxygen content and increased the carbon dioxid content. He theorized that eventually air in rooms would be devitalized to such an extent that it would not support life, and this was a perfectly sound theory, if the vitiating of air was carried on to a point where the predicted results could be obtained. But the practical application was not carried out to the point where it would show that, in the usual conditions encountered, this condition was rarely found. From the carbon dioxid and similar theories, the scientists arrived at the amount of fresh air that was needed to keep the carbon dioxid content below the supposed danger line.

These practices continued until the time of Le Blanc in 1842, and others, who disclaimed the old theory and maintained that it was not the carbon dioxid that caused the feeling of discomfort and drowsiness. Von Pettenkoeffer advanced the theory that the air was fouled in crowded spaces by organic substances, either exhaled or exuded from the bodies of the persons present. This theory was never proved, and as a result the original theory of carbon dioxid poison and the controlling of air to prevent it alone was the general practice in ventilation.

RECENT ADVANCES IN AIR-CONDITIONING

At the annual meeting of the American Society of Heating and Ventilating Engineers, in 1911, Guelich and Evans denounced ventilation as it was then practiced. They blamed the physiologists and the doctors who, they said, could not agree on just what air conditions were desirable for the maintenance of health and comfort.

From that time until quite recently the installation of air-conditioning equipment has followed many courses, and the entire subject has been in a state of chaos. Now the old prejudices have been broken down, and air-conditioning is proceeding on a scientific basis.

While it is known that organic odors may produce nausea, loss of appetite and general malaise, the ill effects ascribed to impure, confined air are due, not so much to the chemical impurities in the air as to the physical properties, such as increased temperature, higher percentage of humidity and stagnation of the air surrounding the body.

LACK OF FRESHNESS IN AIR

Up to the present time, proponents of air-conditioning have failed to discover the cause of deadness or lack of freshness in the air. Two theories are advanced: one, the effect of ionization, and the other, the effect of ozone. Little is known at present regarding the ionization of air. Ions are produced by solar radiation, cosmic rays and radio-active changes in the soil. In unoccupied rooms the ionic content is about the same as outside air. In occupied rooms there is a marked decrease in the ionic content, which state prevails until the occupants leave the room, when the percentage immediately increases. Air-conditioning apparatus produces a definite decrease in the ionic content of the air. These facts may account for the lack of freshness in conditioned rooms.

Ozone is triatomic oxygen usually produced by a high-tension electric discharge. It is very unstable, and for that reason was thought to oxidize the impurities of the air. The usual concentration in nature is from .02 to .04 parts to one million. A concentration of .06 parts per million is necessary to be distinguishable to the sense of smell, and four parts per million is definitely irritating to mucous membranes. Inasmuch as a concentration of five hundred parts per million is necessary for germicidal use, the futility of ozone machines, as air purifiers, is readily seen.

AIR-CONDITIONING: ITS DEFINITION

Air-conditioning has been defined as the science of controlling the temperature, the humidity and the purity of the air, and its movement within closed spaces.

Air is considered a mechanical mixture, of which the main constituents are oxygen and nitrogen in the proportions of one to four. The other constituents are certain inert gases, such as helium, nitrone, argon and neon, and carbon dioxid. This last is always present in practically the same percentage, and is necessary for the growth of flora. Water vapor, though present in the air, is not a constituent of air.

Engineers have worked out what is known as a psychiometric chart to determine the percentage of moisture in the air. It takes into consideration the differences in temperature of the wet and dry bulb thermometers, and the results are expressed as percentage of humidity or relative humidity. Instruments have been devised that will measure the relative humidity within a reasonable degree of accuracy.

PRESENT-DAY MECHANICAL APPARATUS FOR AIR-CONDITIONING

Apparatus has been developed which will produce any desired atmospheric condition. Air can be cleaned, heated, cooled, humidified, dehumidified, and circulated. This apparatus may be a central unit, which will condition an entire building or

* Abstract of a paper read before the Pacific Coast Oto-Ophthalmological Society at the annual session in Portland, May 20, 1935.

a small unit for a separate office or hospital room. These machines have been perfected to a point where the relative humidity and temperature can be maintained at any desired point, and almost all of the pollens, etc., removed from the air, which is supplied.

With such machines at their command, the engineering profession is asking us, as medical men, what conditions we desire for our hospitals and patients. How shall we answer their questions, or is there a real need for air-conditioning in our hospitals, offices, and homes?

EFFECTS OF SUDDEN TEMPERATURE CHANGES

Mudd, Grand and Goldman, in 1921, in a series of experiments on humans, demonstrated that chilling of the body surface caused reflex vasoconstriction and ischemia in the mucous membranes of the nasal cavity and postnasal space, etc. They thought that this ischemia might cause a lowering of the local resistance, which would allow infection to occur. During the course of their experiments, ten of the subjects developed acute colds and sore throats, and an interesting change in the bacterial flora was noted.

Their experiments have been borne out by the sickness records in industry. Men who worked at trades where there were frequent sudden temperature changes are known to suffer more from upper respiratory diseases than in other trades. Most outstanding in this group are the steel workers, who labor for short periods in high temperatures and then cool off in rest periods.

HOW ATMOSPHERIC CHANGES AFFECT THE DEVELOPMENT OF PREMATURE INFANTS

Blackfan and Yaglou, in 1933, studied the effects of atmospheric conditions on the growth and development of premature infants. They compared the results of seven years' work in the conditioned nursery with the results of the three years previous to the installation of the system. They had one unit which maintained a low humidity, and another which maintained a high humidity. The general net mortality rates from acute upper respiratory infections showed a remarkable difference in the three nurseries. In the old, unconditioned nursery the percentage was 26.5 as compared with 9.7 per cent in the low relative humidity nursery, and zero per cent in the high relative humidity nursery. The mortality rate from all causes was 28.9 per cent in the unconditioned nursery; 14.9 per cent in the low relative humidity nursery, and 0.7 per cent in the nursery with high relative humidity.

To me, the most interesting part of their work has been the definite decrease in the percentage of respiratory infections in the infants kept in the nursery having the high relative humidity. The percentage relative humidity used was 65, with a temperature of 75 to 100 degrees Fahrenheit.

HAY FEVER AND POLLEN ASTHMA

The effect of conditioned air on hay fever and pollen asthma has been studied by many. It has been found that, while commercial filters as now manufactured are not 100 per cent perfect, those that remove all but traces of pollens will relieve symptoms of hay fever. Relief of symptoms was usually noted within ten to fifteen minutes after entering the conditioned rooms, and after two hours no evidence of the disease was found. Returning to the pollen-laden air immediately caused recurrence of the symptoms. Relief from pollen asthma was not gained as quickly as it was in those suffering from hay fever. The subjective symptoms of asthma diminished in a few hours, but the objective evidence disappeared less rapidly.

THE COMMON COLD

Kerr and Lagan, in their studies of the common cold, found that they were unable to infect a normal person so long as that person was in a properly conditioned room. The room used was kept at a relative humidity of 55 per cent, and a dry-bulb temperature of 70 degrees Fahrenheit. Twenty-eight normal subjects were inoculated with material from the nasal passages of patients suffering from severe acute colds, and none of them contracted colds or showed any symptoms referable to a cold. The series is a small one, but the results shown are certainly striking.

Rowe has found that the patients having hay fever or pollen asthma show definite improvement when placed in air-conditioned rooms. He uses a relative humidity of 40 to 45 per cent, and feels that the dryness is of assistance in the asthmatic particularly.

AIR-CONDITIONING INSTALLATIONS BY RAILROADS AND THEATERS

The railroads and theaters are installing air-conditioning from a comfort standpoint alone, and have found that their business has been increased considerably. They are using a humidity of around 50 per cent, and maintaining the temperature at about 10 to 15 degrees Fahrenheit below the outside temperature in the summer time, and around 70 degrees Fahrenheit in the winter time.

NEED OF AIR-CONDITIONING IN OFFICES, HOSPITALS, AND HOMES

I feel that there is a definite need for conditioned air in our offices, homes, and hospitals. Of course, it is not possible to have everyone in conditioned rooms every hour of the day. We can, at least, condition our offices and homes, or parts of them, and we certainly should have conditioned air in the hospitals.

COMFORT ZONES

The engineers have worked out what is known as a comfort zone for average individuals in winter and summer. In summer they found that a temperature of 71 degrees Fahrenheit and a relative humidity of 40 to 60 per cent was comfortable for most people. In winter the temperature was slightly lower at 66 degrees Fahrenheit, and a relative humidity from 40 to 50 per cent was most satisfactory. These data are applicable to normal individuals, who occupied the rooms for long periods of time as, for example, when in an office or home. If one is working out a com-

fort chart to be applied for short periods of time, the temperature and humidity must vary with the outside conditions, so that the shock of the sudden change will not be too great when passing from one place to another.

IN CONCLUSION

Each individual patient we see will present entirely different requirements for the conditions of the air to be supplied. The results shown by the various investigators, whom I have quoted, show this to be the case. For example, the nursery for the premature infant should be maintained at a relative humidity of from 60 to 65 per cent, and a temperature of from 80 to 100 degrees Fahrenheit, depending upon the age and weight of the patient. The asthmatic, on the other hand, responds much more quickly if the relative humidity is kept at 40 per cent. The patient who has a stuffy nose in an atmosphere of high relative humidity responds nicely to a humidity of from 48 to 50 per cent, and a temperature of about 68 degrees Fahrenheit.

In the extremely dry climates of the interior of our western states it will be necessary, at times, to add water to the air circulated to increase the humidity. Patients in these regions frequently complain of the extreme dryness and irritation of the mucous membranes of the nose and throat.

Our hospitals should be conditioned by the unit system so that individual rooms, or groups of rooms, can be maintained at any desired state. They can accommodate, in this way, any type of patient that may require care.

I have endeavored to outline, briefly, the subject of air-conditioning as it has been developed by the leading ventilating engineers. Its value in the management of diseases of the upper respiratory tract has been shown by many investigators. I hope this paper will serve as a stimulus for all of us to become more conscious of the atmospheric environment of our patients in the future.

384 Post Street.

POLIOMYELITIS*

IN VITRO NEUTRALIZATION TESTS, USING NORMAL ADULT AND CONVALESCENT HUMAN SERUMS

I. INTRODUCTION

By Beatrice F. Howitt, M.A.
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Discussion *by K. F. Meyer, Ph. D., San Francisco.*

DURING the outbreak of poliomyelitis in northern California in 1934, serum was collected both from patients who had recovered from the disease, and from so-called "normal" individuals. The pooled convalescent serums were given therapeutically to the active cases, four to twelve persons contributing toward each mixture. The pooled serums from adults having a negative history of poliomyelitis were used prophylactically for contact cases, eight to sixteen individuals contributing toward each of these.

The use of normal serum has been founded on the observations of numerous workers, who have estimated that between 70 and 80 per cent of the normal adult urban population possess neutralizing antibodies for the poliomyelitic virus. Based on these reports, and those of Davide [1] and of Flexner and Stewart,[2] for the prophylactic use of convalescent serum, Moro,[3] in Germany, suggested that "normal" adult serum, or the whole blood, should be administered prophylactically to young children in an epidemic. This type of passive immunization was used by Brebner [4] in the United States during 1932.

The normal serum collected in 1934 for the outbreak in northern California was divided into two classes, one obtained from the medical staff of the University of California Hospital and the other from outside volunteers. It was thought that members of the staff might have had greater opportunities for exposure to poliomyelitis and, therefore, possess more antiviral substances in their blood than the average adult. Serum was also collected from a group of professional donors who might be called on for direct transfusions if they proved suitable.

To determine the relative values of these several groups, *in vitro* neutralization tests were made on many of the normal and the convalescent pools, respectively, as well as on individual serums. The results will be presented, even though many workers have reported upon observations of a similar nature. All such data, however, may prove valuable as an aid in directing the course of public health policy during an epidemic or a time of sudden emergency.

II. METHODS

All neutralization tests were carried out with a standard dilution of 5 per cent cord suspension of a monkey passage virus kindly sent by Dr. M. Brodie of the New York University. Suspensions made from the same cord mixtures of one group of monkeys was used as the stock virus throughout all the different experiments over a period of several months. The 5 per cent suspension, made fresh about once a month, lightly centrifugated, maintained about the same degree of potency throughout this period, the M. L. D. being approximately a dilution of 1-800 or 0.00125 cubic centimeters. The standard amount used for the tests was a 1-25 dilution (0.04 cubic centimeters) or about 32 M. L. D. As many tests as possible were performed at one time for better purposes of comparison. Equal parts of the 5 per cent diluted virus, and the pools or single serums were mixed, placed at 37 degrees centigrade for two hours, and then kept overnight in the ice-box before injecting 1.5 cubic centimeters of each intracerebrally into monkeys, according to the method of Shaughnessy, Harmon and Gordon.[5] No preservative was put in the serums.

III. NORMAL ADULT SERUMS

Because of the high incidence of poliomyelitis among the older age groups (35.41 per cent) in

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California, the endeavor was to accept blood of normal volunteers only from those individuals over thirty or thirty-five years, presuming that immunity increased with age.

As shown in Table 1, individual serums were tested from twenty-six normal professional donors varying in years from twenty-three to forty-six, averaging thirty-one. The undiluted serum of seventeen (65.3 per cent) neutralized the virus, while nine, or 34.7 per cent, failed to do so. Nine of ten serums proved potent in a dilution of 1-10, and six out of nine in a 1-40. The one serum tested at 1-80 failed to neutralize.

These figures are fairly in agreement with those given by Schultz and Gebhardt[6] for San Francisco (56.2 per cent), and are nearly the same as those presented by Weyer, Park and Banzhaf[7] for New York City (66.6 per cent), although Jungeblut[8] gives a lower value (56.6 per cent) for the latter. Most of the other reports show higher percentages for urban populations.

Of the normal pooled serums, five were mixtures from the medical staff and six from adult outside volunteers. In the first group, four pools contained four individual serums each and one had seven, while in the second, three pools contained eight serums each, two had thirteen, and one had sixteen. The average age incidence was thirty-five years for the first group, and thirty-nine for the second. All serums neutralized when undiluted. Four of each group were also positive when diluted 1-10. Upon further dilution the pools from volunteers seemed to be slightly weaker, although one of each went to 1-60, while none was positive at 1-80. These figures ran slightly higher than those given by Jungeblut[8] for normal pools. It also showed that there was practically no difference in potency between the supposedly better grade pools of serum than those chosen at random from the adult city population. However, there was a larger average number of individuals in each of the latter pools.

IV. POOLED CONVALESCENT SERUMS

Comparison was made with eighteen pools of convalescent serums chosen at random from adults and children having had the disease at varying periods. These contained from seven to eleven different serums, but several had only two or three. All except one neutralized when undiluted. The negative one was composed of only two serums, so that it could hardly be classed as a real pool. Eight serums were titrated further (Table 1), but failed to show quite the degree of potency as given by the normal serums. Of eight diluted 1-40, five (62.5 per cent) failed to neutralize, while of nine normal pools only two (22.2 per cent) were negative at this dilution.

This somewhat decreased strength shown for the convalescent serums is also in agreement with the recent work of Jungeblut,[9] but contrary to that of Brodie,[10] who found the normal serums weaker in New York. It would conform, however, with reports given by Howitt,[11] and by Paul and Trask,[12] for poorly neutralizing individual convalescent serums.

TABLE 1.—*Neutralization Tests on Normal and Convalescent Serums**

Type of Serum	Undiluted Serums			Dilutions of Selected Serums or Pools																			
				1-5			1-10			1-20			1-40			1-60			1-80		
	Total Number	+	0	Total Number	+	0	Total Number	+	0	Total Number	+	0	Total Number	+	0	Total Number	+	0	Total Number	+	0
Individual normal	26	17 (65.3%)	9 (34.7%)	..	..	..	10	9	1	1	0	1	9	6	3	..	..	..	1	0	1
Individual convalescent	18	12 (66.6%)	6 (33.3%)	5	3	2	12	7	5	5	3	2	12	5	7	..	..	..	..	..	..
Pooled normal	House staff 5	5 (100%)	0	..	..	.	5	5	0	..	..	..	4	4	0	1	1	0	1	0	1
	Outside volunteers 6	6 (100%)	0	1	1	0	5	5	0	..	..	..	5	3	2	1	1	0	2	0	2
Pooled convalescent	18	17 (94.4%)	1 (5.6%)	1	1	0	8	5	3	..	..	..	8	3	5	5	3	2	2	0	2

* +=Neutralization.
0=No neutralization.

TABLE 2.—*Neutralization tests on Selected Groups of Serums**

Series	Selected Pools or Serums	Number Tested	Dilutions of Pools or Serums			
			1-5	1-10	1-20	1-40
I Pools	House staff over 35 years	1	....	+	....	+
	House staff under 35 years	1	....	+	....	+
	Normal adults over 35 years	1	....	+	....	+
	Normal adults under 35 years	1	....	+	....	+
II Pools	Convalescent in 1934	1	+	....	+	....
	Convalescent for two years	1	+	....	+	....
	Convalescent for four years	1	+	....	+	....
	Convalescent for ten years	1	+	....	+	....
	Convalescent for twenty years	1	+	....	0	....
	Convalescent over twenty years	1	+	....	+	....
III Individual	Convalescent in 1934	2	One + One 0	....	One + One 0	....
	Convalescent for four years	1	+	....	+	....
	Convalescent over twenty years	2	One + One 0	....	+	....

* +=Neutralization.
0=No neutralization.

V. COMPARISON OF SELECTED POOLS OF NORMAL SERUMS

Comparison was made of selected groups of serums from normal adults. Six were pooled from normal outside volunteers, and six from members of the medical staff over thirty-five years of age. A similar number was also pooled from the two groups of those under thirty-five years, but not below twenty-five. As shown in Table 2, all neutralized the standard dose of virus in a dilution of 1-40, again demonstrating the comparable effectiveness of the normal pooled serums.

It was also interesting to note that of two laboratory workers having had intimate contact with the poliomyelitic virus over a period of years, the serum of one neutralized in a dilution of 1-40 but not 1-80, while that of the other failed to neutralize even undiluted.

VI. SELECTED GROUPS OF CONVALESCENT SERUMS

To determine the potency of convalescent serums when pooled from individuals after varying periods of recovery, selections were made from different groups convalescent for a few months and for 2, 4, 10, 20, and over 20 years, respectively, as shown in the table. All except the serum of twenty-year duration neutralized in 1-20 dilution, even after a forty-year recovery.

Five individual serums were tested in the same way, two from recent convalescents in 1934, one from a patient recovered four years and two over twenty years. One of the recent serums failed to neutralize, while one was potent in a 1-20 dilution. Of the serums from older cases, both neutralized in a 1-20, although one failed in a 1-5 dilution.

It was interesting that the nonpotent serum of 1934 also failed to neutralize a recently isolated strain of virus obtained during the late outbreak. It was likewise found that unpreserved serum from a convalescent case was still potent after storage in the ice-box for one year and six months, while a second one lost its efficacy only after storing two and one-half years.

Serums were selected from two groups of convalescent patients, one having been given serum treatment during the attack of poliomyelitis and the other not having received it. All the individuals chosen were over eighteen years of age and had acquired the disease from several months to twenty years previously. Neutralization tests were performed both on the undiluted serums, and when diluted to a maximum of 1-40. As shown by Table 3, the results were fairly comparable for each group. Four out of seven (57.1 per cent) neutralized in the series given convalescent serum, while six out of nine (66.6 per cent) were positive in the untreated series. The advantage was more in favor of the latter group, both when undiluted and in the different dilutions. In comparing the total number of individual convalescent serums tested in a 1-40 dilution with those of the normal group in like dilution, the advantage lies with the normal serums, six out of nine (66.6 per cent) showed positive neutralization when diluted 1-40, while only five out of fourteen, or 35.7 per cent, were positive in the recovered group.

VII. DISCUSSION

The results of this small series of neutralization tests again indicate that the use of normal pooled adult serum from an urban population is justified in an epidemic of poliomyelitis. Potency tests in monkeys show an equal if not greater average degree of neutralizing ability among the positive so-called "normal" groups than among those recovered from the disease. However, since only a certain percentage of the urban population possess antiviral substances, individual serums chosen at random should not be relied upon for potency without a preliminary test in monkeys. On the other hand, normal serums pooled in groups of not less than ten or twelve persons apparently can safely be used in the central Californian region without previous testing.

Although there has been discussion, upheld by experimental data, to show that the strain of virus employed in the *in vitro* neutralization test may influence the outcome, yet if the same virus is similarly employed throughout the different series, comparative results should be of value, even

TABLE 3.—*Neutralization Tests on Serums of Convalescent Patients**

Serum Treatment	Patient	Serum Dilutions				
		Undiluted	1-5	1-10	1-20	1-40
Given	G. F.	0	0	....	0	....
	J. N.	+	+	....	0	....
	R. N.	+	0	....	0	....
	A. H.	0	0	....	0	....
	R. B.	+	....	+	....	+
	G. L.	+	....	+	....	+
	M. A.	0	....	....	....	....
Not given	W. H.	+	0	....	....	....
	M. C.	+	....	....	....	+
	H. B.	+	....	+	....	0
	R. G.	+	....	+	....	+
	H. M.	+	....	+	....	0
	A. F.	0	....	0	....	0
	J. O'R.	0	....	0	....	0
	M. H.	+	....	+	....	+
	A. J.	0	....	0	....	0

* +=Neutralization.
0=No neutralization.

though the percentage of positives may have differed when using a recently isolated or a "passage" strain of virus. This question of the desirability of using various strains has recently been ably discussed by Paul and Trask.[12]

Because the *in vitro* neutralization test has been the usual criterion for judging the potency of a serum, one would feel justified from the results here given in recommending the administration of normal adult pooled serums collected at random from urban dwellers over thirty-five years of age. It would, of course, be of more advantage to have on hand a list of tested donors whose serums could be pooled in periods of emergency, or who could be used individually for direct transfusions. From the data available one would have more confidence in the potency of normal adult serums selected from an urban population than in those collected from an average group of convalescent cases, mostly children. These observations are in accord with those of Jensen[13] in regard to the therapeutic use of serums in poliomyelitis. This author reports that, during the Danish outbreak in 1934, pooled serums obtained from abortive cases of poliomyelitis were found to have higher neutralizing ability than those from frankly paralytic cases.

The question of the efficacy of all these serums after administration to the patient is not being discussed here, but merely the theoretical value as demonstrated by the *in vitro* neutralization test. Undoubtedly, from this standpoint, many serums are effective, although varying in degree of potency, while from the clinical point of view the the subject is apparently a matter of controversy.[13]

VIII. SUMMARY

Seventeen (65.3 per cent) of twenty-six undiluted serums from normal professional donors neutralized a standard amount of poliomyelitic virus, while nine (34.7 per cent) lacked potency.

Pooled undiluted serum from members of the medical staff, as well as from normal adult outside volunteers, all neutralized the same amount of virus. Ten of them neutralized in a 1-10 dilution, seven out of nine in a 1-40, while none was positive after diluting 1-80. Eighteen pools of convalescent serum were tested, and all but one neutralized when undiluted. Titrations of the latter showed a lower degree of potency than did the normal serums.

Selected lots of serums from staff members over and under thirty-five years of age, respectively, as well as from normal adult outside volunteers of the same age groups, all neutralized the virus in a 1-40 dilution.

Titration of convalescent serums in lots from cases having had poliomyelitis, respectively, in 1934, and 2, 4, 10, 20, and over 20 years previously, showed a positive neutralization in a 1-10 dilution. Several individual serums from recently recovered patients showed less potency than those from convalescents of longer duration, even over forty years. There was very little difference in the average degree of potency between two groups of serums from convalescents, one having received serum treatment during the disease and the other not being treated.

From a comparison of the data presented, it would seem justifiable to use pools of normal adult serums from an urban district in the event of a sudden outbreak of poliomyelitis, even though the confirming neutralization test was unavailable at the time.

Hooper Foundation for Medical Research.

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DISCUSSION

K. F. MEYER, Ph. D. (Medical Center, Third and Parnassus Avenues, San Francisco.)—The paper by Miss B. Howitt does not consider the therapeutic or prophylactic use of antiviral serums in poliomyelitis. Two statements summarize the position taken by competent clinicians who feel that the case for or against the use of serum has not been made. Thus Ledingham (Bulletin, Johns Hopkins Hospital, June, 1935, Vol. 56, p. 346), says:

"Some physicians are prepared to accept the view that convalescent poliomyelitis serum is of value therapeutically in the preparalytic stage and act accordingly, but probably a majority believe that no evidence so far has been forthcoming that such serum exerts any therapeutic effect whatever. In any case accurate controlled statistics in support of the procedure are not yet available. I believe, however, that there is a field for antipoliomyelitis serum as a prophylactic for contacts; though here again it will be difficult to get the necessary statistical controls.

"A recent serious outbreak of poliomyelitis in Denmark, in which extensive prophylactic use has been made of antipoliomyelitis serum from the horse, may possibly afford some evidence for or against its value in such circumstances. This antipoliomyelitis serum prepared in the horse has high neutralizing value—considerably higher than that of human convalescent serum—when tested on monkeys."

Probably the majority will concur in the remark by C. Jensen (Proceedings of the Royal Society of Medicine, June, 1935, Vol. 27, p. 1024): "No real proof has hitherto been given that convalescent serum is without effect."

In view of the unfortunate and distressing accidents which have and will accompany the present methods of active immunization, it may indeed be advisable to reconsider the position taken with respect to the use of the antiviral serums. The observations made and the conclusions drawn by Stokes and associates (*American Journal of Diseases of Children*, 1935, Vol. 50, p. 581), deserve consideration in this connection.

THE RÔLE OF THE URETHRA IN FEMALE UROLOGY*

By WILLIAM E. STEVENS, M.D.
San Francisco

DISCUSSION *by Edward W. Beach, M.D., Sacramento; F. S. Dillingham, M.D., Los Angeles; James Steinberg, M.D., Los Angeles.*

ALTHOUGH several excellent papers on the female urethra have appeared in the literature during the last few years, it will be necessary to emphasize the importance of this organ for a longer period of time before the frequency and significance of its lesions are recognized by the majority of the medical profession. My attention was first called to the importance of this organ about sixteen years ago because of the frequency with which the introduction of an examining cystoscope was followed by marked alleviation of symptoms, although these were often suggestive of upper urinary tract pathology.

In a recent study of 425 female patients with urinary disturbances, the urethra was entirely responsible in 67 and at least partly responsible for the symptoms in 328 cases. Lesions of the generative organs were responsible etiologic factors in 90, and other organs not connected with the urinary or generative tracts in seven. These figures correspond to those resulting from a former study of 234 other cases in which urethral lesions were apparently wholly responsible in 56, and partly responsible in 173 instances. Cases of urethritis in which the gonococcus could be demonstrated were not included, otherwise the numbers would have been larger.

The most common pathological conditions of the urethra were: strictures at the external meatus or in the canal, urethritis usually associated with trigonitis, polyps and polypoid formations, papillomata and caruncles. Three of the latter were associated with strictures. Carcinoma occurred in three, sarcoma in one, urethrovaginal fistula in one, and a calculus in one of these cases. I have seen but three urethrovaginal fistulas and one urethral calculus in several thousand women with urinary tract pathology coming under my observation.

Concomitant pathology was found in other portions of the urinary tract in 92 and in the generative organs, most often in the cervix, in 63 of the present series of cases.

EXAMINATION OF THE FEMALE URETHRA

It is often advisable to use three types of instruments in the examination of the female urethra—a skenoscope, a female urethroscope with the lamp at the distal extremity, and a near-vision cysto-urethroscope using water dilatation. If the latter is not used, those pedunculated papillomata and polyps, which lie against the wall of the urethra, may be overlooked. A properly performed, two-glass test is of value in the female as well as male patients, especially when infection is limited to the urethra. Palpation through the vagina will aid in the detection of tumors, foreign bodies, thickening and induration of the urethra, urethroceles and obstruction from extrinsic causes such as displacement of the uterus, fibroid tumors and other growths.

URETHRITIS

Urethritis was found in 150 of this series of 425 patients. Although apparently second in frequency to strictures, with which it is often associated, many cases of urethritis were probably not detected because of the impracticability of satisfactory urethroscopic examination in the presence of urethral obstruction.

Urethritis usually occurs as a diffuse more or less granular inflammation involving the entire urethra, or a limited area more commonly in the posterior portion of the canal. Infection with the gonococcus is the most common etiological factor, although the colon bacillus and other organisms are frequent offenders. Urethritis, due to infection by the latter, with or without infection of the bladder and kidneys, is more common in the female, regardless of age, than is generally appreciated.

Many of our urethritis cases were associated with infection of the cervix. Infection of the urethra from this source and ascending lymphatic infection of the kidneys from the urethra, are

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* From the division of female urology, department of obstetrics and gynecology, Stanford University Medical School.

Read before the Urology Section of the California Medical Association at the sixty-fourth annual session, Yosemite National Park, May 13–16, 1935.

considered quite common by some writers. Renal infection was found however, in but five of the cases of urethritis in which no stricture could be demonstrated in this series of cases.

Beach recently described an interesting condition which he has termed "erotic urethritis." It occurs in women subjected to frequent unrequited genital turgescence, and is characterized by congestion and tenderness in the urethra. Infection is usually absent in this type.

Persistence of urethritis is usually due to infection of the urethral glands. Some authors deny the presence of glands other than the paraurethral glands, sinuses or lacunae, of which Skene's are the best example. They claim that the other structures, which may resemble glands, are simply inclusions of the epithelium, the "cell nests" of Brun, which undergo liquefaction with the formation of unilocular, gland-like structures.

Robin and Cadiat in 1874, and more recently Johnson, Sachs, Renner and Folsom, have demonstrated periurethral glands in the female. It has been conclusively proven that the female urethra contains glands which, although less highly developed, correspond morphologically and in their arrangement to those of the male prostate gland. Prostatic concretions originally described by Morgagni and Virchow were found in several of Renner's cases.

TREATMENT OF URETHRITIS

We have obtained the best results in the treatment of urethritis by rest, bland diet, instillations of argyrol or 1:1000 solution of Boot's acriflavine, alkalinization of the urine and sedatives such as hyoscyamus and belladonna. Chronic cases usually respond to urethroscopic applications of 10 per cent silver nitrate solution and dilatation even in the absence of urethral obstruction. Cauterization of infected glands and granulations is sometimes necessary. Severe irritation is caused in some instances by even mild solutions of silver nitrate. Its use is contraindicated in these patients. The skenoscope is a useful instrument in the examination and treatment of those infected glands and other lesions which are located in the anterior third of the urethra. A urethroscope of the Kelly type, with a lamp at the distal extremity, is used for applications to other portions of the urethra and trigone. The knee-chest position is desirable with this procedure. Water-dilating scopes are preferable when fulgurating granulations, polyps and papillomata.

As a highly acid urine is irritating and sometimes responsible for symptoms even in the absence of demonstrable urinary tract pathology, the majority of our patients received an alkali, together with the hyoscyamus or belladonna. In a number of instances the symptoms disappeared without further treatment.

STRICTURES

Sixteen years ago, impressed by the frequency with which improvement followed a single cystoscopy, I decided to calibrate the urethra of every patient with symptoms suggestive of urinary tract

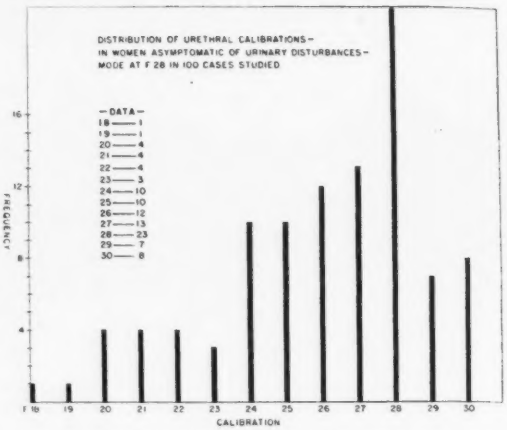

Fig. 1.—Urethral calibration in 100 adult females who had never suffered from symptoms suggestive of urinary tract pathology.

pathology. The results of this routine procedure since that time have confirmed the opinion expressed in a paper read before the California Medical Association in 1919 that, contrary to textbooks, an abnormal narrowing—in other words, a stricture of the female urethra—is a common condition.

In the recent series of 425 patients with urinary symptoms, a urethral stricture was found in 174 or 41 per cent. In a former series of 633 cases, urethral strictures were found in 190 or 30 per cent, and in still another group of 169 cases, strictures were found in 94 or 55.4 per cent. In the total of 1,227 patients with urinary symptoms, I found strictures in 458 or 37 per cent.

Strictures may either be congenital or acquired. The latter are subdivided into inflammatory and traumatic, gonorrhea or other infections of the urethra being the most common etiological factor in the former, and childbirth or cauterization of urethral glands and growths in the traumatic type. It would seem advisable to calibrate the urethra after difficult confinements and following fulguration or cauterization. I believe that in those cases due to foci of infection not located in the upper urinary tract, the cervix and other female pelvic organs are more often responsible for urethral pathology than the teeth, tonsils and other more distant structures. Spasmodic strictures, caused by involuntary contraction of the urethral musculature, are occasionally found in hypersensitive women. I have seen four cases, all of which were more or less resistant to treatment. So-called symptomatic strictures are not uncommon in the adult female.

REPORT OF CASE

The following case illustrates this type:

A single woman, forty-five years of age, complained of complete retention of urine of three days' duration. She had always suffered from frequency and nocturia. The latter had increased in severity during the past few weeks. She had also had a "pulling" sensation in the right lower abdominal quadrant for one week. During the four days previous to the onset of complete retention, she had voided small amounts of urine with difficulty. About 1,500 cubic centimeters of

Fig. 2 Fig. 3 Fig. 4

Fig. 2.—Bend in upper part of normal female urethra. Lateral view.

Fig. 3.—Ventro-dorsal view of urethra, showing the narrowing just posterior to its middle third.

Fig. 4.—Although a normal bend is seen, this patient complained of relative continence of urine. This was partly due to a central nerve lesion.

purulent urine were withdrawn on catheterization. A large pelvic mass, probably a fibroid uterus, was found on vaginal examination. The urethra deviated to the right. A cystoscope was introduced with difficulty because of obstruction caused by the pressure of the mass on the urethra. The bladder wall was markedly injected and hypertrophied. All symptoms disappeared following hysterectomy.

The symptoms of which our last 174 patients with urethral strictures complained were in the order of their occurrence: frequent urination, local or referred pain, nocturia, burning, dysuria, urgency, difficulty in urinating, incontinence, complete retention of urine and dribbling. One hundred and fifty-eight complained of frequency, 145 of pain, 105 of nocturia, 60 of burning, 34 of dysuria, 20 of urgency, 8 of difficulty, 4 of incontinence, 2 of complete retention, and 1 of dribbling. In one of these cases the distended bladder had been mistaken for a pelvic tumor by the attending physician. Spasmodic strictures are responsible for difficulty in urinating and resistance to the passage of instruments.

The pain, of which 145 of these patients complained, was located in the suprapublic region in 34, in the upper lumbar or kidney regions in 32, in one or both lower abdominal quadrants in 29, in the lower lumbar region in 21, in the sacral region in 11, in the urethra in 6, in the groin in 4, in the upper abdominal quadrants in 3, in the thigh in 4 and in the epigastrium in 1. While the symptoms in some of these cases might have been due to concomitant urethral or generative tract pathology, improvement followed dilatation or meatotomy in almost every instance; consequently, I felt justified in the conclusion that strictures were partly, if not entirely, responsible for the patient's discomfort.

Urethral strictures are most frequently located at the external meatus. An increase in fibrous connective tissue or cicatricial contraction is usually found in these cases. Strictures were located at the external meatus only in 149, in the anterior third of the urethra in 13, in one of which a stricture was also found at the external meatus, in the posterior third including the internal meatus in eight, in one of which a stricture was also found at the external meatus and in the middle third in four, of which one was also found at the external meatus. The olive-tip bougie is the most satisfactory instrument for urethral calibration. A local anesthetic is seldom required.

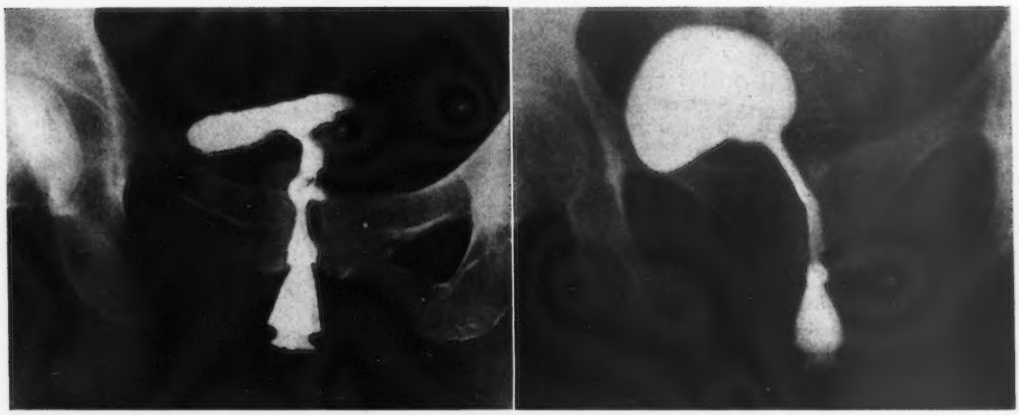

Fig. 5 Fig. 6

Fig. 5.—Distortion of the urethra due to a growth involving the posterior third of the urethra, vesical orifice, and trigone.

Fig. 6.—Urethral pockets due to a stricture at the external meatus.

Opinions differ as to the normal caliber of the urethra in the adult female. Van de Warker believed it to be from F. 23 to F. 28, Folsom from F. 30 to F. 32. Wynne states that the normal meatus varies in size from F. 18 to F. 30. Herman, following calibration in fifty-five women without urinary symptoms, concluded that F. 29 is the normal caliber. We calibrated urethras of 118 women who had never suffered from symptoms suggestive of urinary tract pathology. These showed an average size of F. 26. The smallest one was F. 18 and the largest F. 30. Olive-tip bougies, with the French scale of measurement, were used exclusively in this work. I believe that a urethra below F. 26 is very often responsible for symptoms and pathology such as chronic infection in both the urethra and upper urinary tract.

The most common pathological conditions of the urinary organs associated with urethral strictures were urethritis, trigonitis, cystitis and renal infection. Congenital obstructions of the urethra are probably important factors in the cystitis and pyelitis so common in female infants and children. Whereas kidney infection was associated with urethritis in but 5 of 150 cases, it was present in 17 of the 174 cases with urethral stricture. Eighteen of the patients with urethral strictures also had a concomitant cystitis. This usually disappeared rapidly following meatotomy or dilatation of the urethra in the absence of renal infection. One patient was referred to our clinic with a diagnosis of appendicitis. All symptoms disappeared following meatotomy.

Urethral strictures are more common in women who have borne children. One hundred and fifteen of the strictures in this series of 174 cases occurred in multipara, and 59 in nullipara. A stricture was found at the external meatus in 99, or 86 per cent of the multipara, and in 50, or 84 per cent of the nullipara. Strictures were found in the canal in 16, or 13.9 per cent of the multipara, and in 9, or 15.2 per cent of the nullipara. The average size of the stricture was about the same in both multipara and nullipara: F. 21.6 in the former and F. 21.3 in the latter.

Urethral obstruction is due, in a very small number of cases, to polypoid formation, or to a thickening in the posterior urethra with or without contraction of the vesical orifice, the so-called prostatism in the female. These conditions are usually due to a low grade infection of many years' duration. Urethral valves are extremely rare in this sex.

TREATMENT OF STRICTURES

While dilatation of strictures at the external meatus will usually result in the relief of symptoms, meatotomy is the procedure of choice for obstructions at this location. It is preferable to bring the skin and membrane together on both sides of the meatus with fine catgut following incision. This will result in less postoperative bleeding and prompt healing. Further passage of dilators is seldom necessary following this procedure. Strictures in the canal yield readily to gradual dilatation. It is occasionally necessary to fulgurate obstructions at the internal urethral meatus or vesicle orifice. Resection may occasionally be required. Thirty-five per cent of these patients were permanently cured. Sixty per cent showed marked improvement or disappearance of symptoms, but not sufficient time has elapsed to justify the statement that they were cured. Five per cent were unimproved.

URETHROGRAPHY

It has been necessary to change our conception of the contour of the female urethra since Einar Thomsen's roentgenological studies of this organ. This author has demonstrated an angular bend in the posterior urethra at the point where it is suspended in the loop formed by the sphincter trigonalis and Heiss's muscle fibers. Thomsen states that a straightening out of this bend will result in incontinence of urine. I have found exceptions to this rule. The conclusion may be drawn from Thomsen's investigations, however, that an operation to support or tighten the anterior wall of the urethra may be necessary in some cases of incontinence.

Thomsen has also shown the narrowing at or just above the midportion of the urethra corresponding to the point where it passes through the urogenital diaphragm. A slight resistance is sometimes encountered at this location on instrumentation. It should not be mistaken for a stricture.

SUMMARY*

The conclusion is drawn from these statistics that lesions of the urethra, especially urethritis and strictures, play a very important rôle in female urology.

Both para-urethral and peri-urethral glands are found in the female urethra. Persistence of urethritis is usually due to infection of these structures, together with a frequently associated urethral obstruction.

Strictures are common in women. They are more numerous at the external meatus, and are responsible for a large variety of symptoms including pain in various locations. Multiple strictures were found in three of the series of 174 cases of urethral stricture.

The average size of the normal urethra in the adult female is F. 26. The average stricture is about F. 21.

Our urethrograms show the angular bend as well as the narrowing in normal female urethras recently demonstrated by Einar Thomsen.

870 Market Street.

DISCUSSION

EDWARD W. BEACH, M. D. (Medico-Dental Building, Sacramento).—We, as urologists, and the profession at large, are greatly beholden to Doctor Stevens for his work on the female urethra. Some sixteen years ago Doctor Stevens observed certain phenomena relative to this structure and, like the great mathematician Maxwell when he first beheld a locomotive, he set about to comprehend the "go" of it. Since that time, Doctor Stevens has painstakingly correlated his observations on the female urethra from a vast array of clinical material; he has endeavored to study the

* The author wishes to express his appreciation to Doctor S. P. Smith of Stanford University Hospital, for his valuable assistance in the calibration and roentgenography of these patients.

"go" of it in its various phases, and by a series of splendid articles over a period of years he has directed the profession's attention to possibilities in this abbreviated aqueduct. Through Doctor Stevens' pioneer efforts, which later were amplified by other competent observers, the urologist of today has become urethra "conscious," and the general profession slowly but surely is becoming cognitive of latent possibilities existent in this little canal. These initial studies, plus the modern diagnostic instruments, have provided the urologist with Ephesiae literae, as it were, in his investigation of the female urethra.

In this article Doctor Stevens has rightly dwelled upon the frequency with which urethritis, other than the specific type, occurs in the female. He has pointed out that this entity is often associated with diminution in caliber of the canal or urethral stricture. He has stressed the fact that concomitant infection of the cervix and genital adnexia is not rare in these cases. It would appear, therefore, that a cure depends upon a most elaborate and detailed investigation, together with eradication of any contributing factors or contingent etiology. To me, the importance of trauma, particularly coital trauma, in these urethritis cases cannot be lightly passed over. One need only separate the labia to behold the urinary meatus bathed in a cesspool of mucus, bacteria and cellular débris, and flanked on either side by its gaping paraurethral endowment, to realize that only slight trauma is needed here to render vulnerable such highly potential soil. I believe, likewise, that the abrasive effect of toilet paper employed in an effort to dry the vulva after urination, together with the act of sweeping from the anus upward in this process, as practiced by many women, must be thought of in certain of these urethritis cases.

With regard to acquired strictures, we must consider principally infection, destructive lesions and the trauma attending childbirth. Infection is particularly operative about the meatus because of its position and its glandular endowment, and it is, hence, in this locality that a diminution in caliber is found most frequently. However, since the female urethra is homologous to the male supramontane urethra, and contains glands whose arrangement corresponds genetically and morphologically to this portion in the male, infection with stricture possibilities cannot be ignored elsewhere.

Destructive lesions in the form of abscesses in and about the urethra are often provocative of strictures. Overenthusiastic fulguration or radical operative technique for caruncle at times is responsible for stricture formation.

Trauma of the urethra is frequent at childbirth. The urethra is caught between the unyielding fetal head behind and the pubis above. In this way considerable pressure is brought to bear upon the urethral canal, and great damage may result. It is for this reason that strictures are more often found in multiparous women. Doctor Stevens rightly insists on examination and calibration of the urethra after difficult or instrumental deliveries.

The importance of urethrograms in the study of the female urethra is just beginning to be appreciated by most of us. So far as I know, Crabtree of Boston is the only man employing this method more or less routinely at the present time. Thomsen's preliminary work has opened a great vista for the advancement of our knowledge from the standpoint of anatomy, physiology as well as pathology, relative to the urethra. The knowledge thus gained, as Doctor Stevens has stated, will undoubtedly explain certain cases of incontinence of lesser degree which now are a great trial to the urologist, both as to exact etiologic comprehension as well as cure.

I hope Doctor Stevens will favor us in the near future with a similar article, setting forth in more detail his studies in urethrography.

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F. S. Dillingham, M. D. (610 South Broadway, Los Angeles).—This is an important subject, and Doctor Stevens is right when he again brings it to the attention of urologists and the general medical profession. Owing to the wealth of his material, his statistics are valuable; and, as usual, Doctor Stevens has covered the subject so well that we can only emphasize some points.

Many times a urethrocele is diagnosed as a caruncle, and a cure attempted with no thought of pelvic and perineal repair.

Symptoms of cystitis are often found to be caused by a granular urethritis, and respond to dilatation and application of silver nitrate through the open urethroscope. In persistent or recurring urethritis the glands of the urethra may be gently injected directly by a gold needle through the urethroscope, or destroyed by fulguration. In the majority, I find Rivanol solution 1:5000 to 1:1000 less irritating, less staining, and more efficient than either acriflavine or the later neutral acriflavine. The use of subcutaneous Edwenil or intravenous 1:1000 hydrochloric acid has seemed to aid in the recovery of some of the stubborn cases of urethritis, and lessen the reaction to dilatation or silver nitrate as mentioned by Doctor Stevens.

The majority of cases that come to me in private practice are not due to the gonococcus, but, as a rule, are caused by the same bacteria that are found in the nonspecific male urethra. It is surprising how some women with badly torn perinei escape infection when their relaxed urethral meatus is bathed in pus from the vagina or rectum; while others with a normal, small, or strictured meatus will be promptly infected. The position of the meatus has seemed to me to be of etiologic importance, as some are placed at almost the very entrance of the vagina and may account for the greater number of infections in married women.

Some cases of stricture are neglected, as in the male, and require filliforms and the smallest bougies at the beginning of treatment. One patient with contracture of the bladder neck and a residual of 330 cubic centimeters could not void till hot towels were applied. This condition was entirely relieved by the McCarthy resectoscope resecting the obstructing fibrous tissue, and there has been no residual urine since.

The loop is more practical in removing papillae, polypi and lesions at the bladder neck, as so ably described by Folsom, than the older methods.

I have failed to cure incontinence by suturing the wall of the urethra to the periostium of the pubes; possibly I was afraid of causing too great an angle and so did not make one great enough. If properly done, it is probably simpler than using the gracilis muscle.

One large diverticulum near the bladder neck was discovered when the physician stripped the urethra and a gush of argyrol flowed out after being retained for four days since her previous visit. This was verified by the use of a cystourethroscope.

I might add one more authentic case of stone in a diverticulum of a female urethra, which I found in 1932, but was not reported. Shivers and Cooney, in 1934, reported that only two such cases have been found to date.

I again plead for the brief reporting or recording of the single or few cases of interest so that they may be added to the statistics of the larger clinics. Papers of the type submitted by the author should be read and discussed at general meetings, as well as the closely allied sections.

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James Steinberg, M. D. (1052 West Sixth Street, Los Angeles).—Lower urinary-tract obstruction in the male has been so overemphasized, and has occupied the center of the stage for so many years, that it has displaced and distracted attention from the existence of obstructive types of pathology in the female.

The importance of the rôle of the urethra in female urology as an obstructive factor deserves all the credit that Doctor Stevens has given it, and any discussion on this subject should serve the purpose of still further stimulating the attention of the medical profession to the frequency of this type of simple obstructive pathology that causes so much grief to so large a percentage of female patients.

In addition to the true type of urethral stricture, as has been described, with its resultant symptoms of obstruction, the bladder-neck type of obstruction and narrowing of the proximal end of the urethra in the female, with acute or chronic congestion of the bladder neck and resultant trigonitis, should not be overlooked as one of the commonest etiologic factors of female vesical irritation.

A characteristic trait among women is the habit of holding the urine for long periods of time and not attending to the call of nature as soon as the desire to void is experienced. This results in acute bladder-neck congestion, with the result that there is a temporary atony of the bladder wall causing a residual bladder urine at the next voiding. If this habit is constantly indulged in, it will eventually result in chronic inflammation and congestion of the bladder neck with trigonitis which, in turn, will produce contracture and narrowing of the bladder neck, producing thereby the symptoms of obstruction as have been described.

Fortunately this condition can be remedied in the female much easier than in the male because of the ease of accessibility, and also because there is no complicating factor to consider such as the prostate in the male.

The crusade of arousing the medical profession to the importance of this common type of obstructive ailment, and the comparatively simple procedure in bringing about the relief of such a large percentage of women sufferers, is certainly well worth the time and effort put into this subject by the author.

COMPRESSION FRACTURES OF THE SPINE*

By Wayland A. Morrison, M.D.

and

Richard J. Flamson, M.D.

Los Angeles

Discussion *by Francis M. McKeever, M. D., Los Angeles; Howard W. Fleming, M. D., San Francisco; Arthur L. Fisher, M. D., San Francisco.*

During the past ten years we have treated 2,522 cases of fractures of various types at the Santa Fe Hospital in Los Angeles. Of this number, 4 per cent were compression fractures of the spine. The percentage of fractures of this type seems to be on the increase, due probably to the increased number of automobile accidents since the repeal of the Eighteenth Amendment. This type of injury to the spine is the most common, and not infrequently is missed by the medical attendant. Untreated cases which may show no great deformity often have prolonged pain and are responsible for many total disability ratings. While adequate treatment will greatly reduce the pain and the ultimate total disability, there is still much to be accomplished in the handling of this type of case.

In our series the average age was thirty-nine years, the youngest was ten years, the oldest was seventy-eight years, and four were females.

There were four deaths; three patients refused treatment; 9 per cent had cord injuries, and 33 per cent had other fractures.

The diagnosis of compression fracture of the spine is best made by the x-ray. Good lateral views, as well as anteroposterior views, are essential.

* Read before the General Surgery Section of the California Medical Association at the sixty-fourth annual session, Yosemite National Park, May 13-16, 1935.
Illustrated by twenty-three lantern slides.

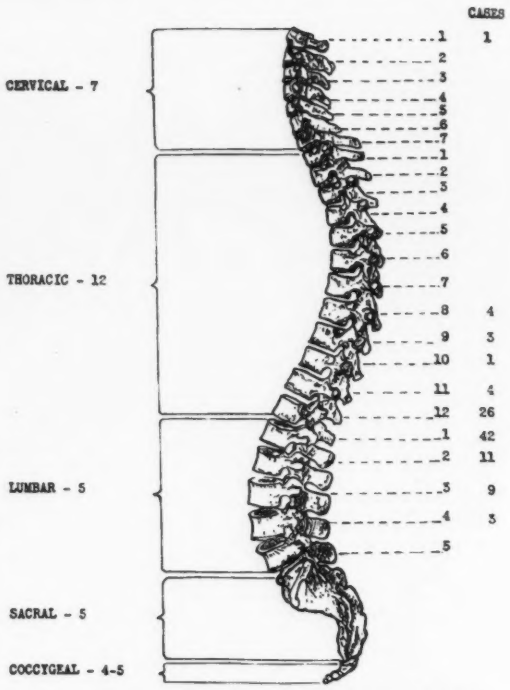

Fig. 1.—Distribution of fractures as to vertebra involved.

ANATOMICAL STRUCTURE OF THE SPINE

As we know, the spine is the flexible, supporting rod of the body. It is made up of articulated discs and held together by means of strong ligaments and articulated facets. The spongy vertebral bodies increase in size from above downward to accommodate the varying weight and strain to which they are subjected. The flexibility and elasticity of the spine are due to the intervertebral discs and the double anteroposterior curves.

SPINE INJURIES

Keeping in mind the anatomical structure of the spine, it is easy to see how any force causing flexion of the structure beyond its normal elasticity will injure the spine at its weakest point, which is the region of spongy vertebrae. The same is true when undue weight is placed upon the bodies, as in a fall, or, as happened in one case in our series, while lifting a heavy load. Forced hyperextension will also produce fracture by tearing the prevertebral ligament and pulling with it a fragment of the body of the vertebra. The most common cause is the so-called "jack-knifing," or forced flexion. In our series, falls were responsible for 69 per cent of the injuries; automobile and train wrecks, 16 per cent; direct trauma, 9 per cent; forceful sitting, 5 per cent; and lifting, 1 per cent.

The body of the vertebra may be actually comminuted and broken into several pieces. Occasionally we see a cup-shaped depression. The most usual kind, however, is the narrowing of the anterior portion, causing a wedge-shaped deformity with resultant posterior kyphosis. The crushing

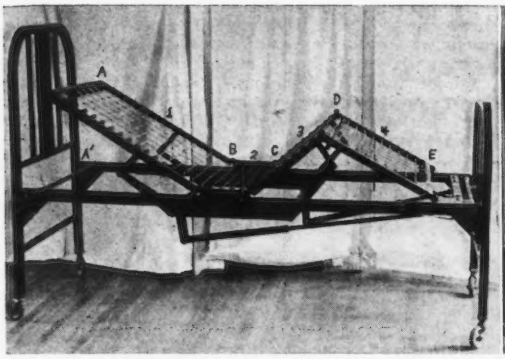

Fig. 2.—Simmons hospital bed.

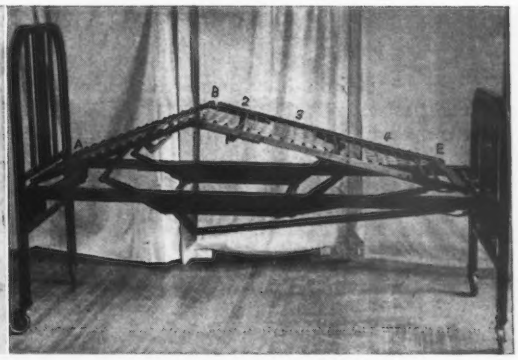

Fig. 3.—Converted Simmons hospital bed.

Conversion of Simmons hospital bed to hyperextension bed. (1) Fasten *A* of Section 1 to bed frame at *A'* permitting springs to swing at this point. (2) Release Section 2 of springs from bed frame by removing rivets or bolts. (3) Make Sections 2, 3 and 4 rigid by bolting three-fourths inch channel iron on each side of frame from *C* to *D*. (4) By turning both cranks simultaneously the spring can be elevated at *B*. Care should be taken to advance both cranks evenly to assure equal bearing on each elevating arm.

may be asymmetrical, and more than one vertebra may be involved. When the neural canal is narrowed or displaced, cord lesions usually develop. It is well to bear in mind that very slight injuries may often produce severe lesions.

SYMPTOMS

Pain is usually a constant symptom, and is frequently referred below the point of injury on account of nerve-root involvement. A few individuals, even with severe fractures, may complain of very little pain. In rare cases a patient will have none at all. Tenderness and muscle spasm are usually present in the region of the fracture. In the lower dorsal and lumbar region the lesion may cause a certain amount of ileus and distention. The abdominal picture may be one to suggest the acute abdomen. Deformity of the spinous processes, or a kyphosis, always suggests a compression fracture, and this condition should be looked for when a compression fracture is suspected. Paralysis of varying degrees may be present, depending upon the severity of the cord lesion.

TREATMENT

The treatment of compression fractures varies greatly in different clinics. At the present time almost everyone is convinced that some form of hyperextension is essential in order to reduce the fracture. This has been accomplished by various mechanical means. It was the fashion, and still is in some clinics, to bounce the patient, while under anesthesia, on a blanket or sheet, thus forcibly hyperextending the spine and reducing the fracture. We used this method for some time, but in the past year or two have given it up owing to some serious after-effects, namely, cord damage and distressing abdominal distention. After manipulation the patient was placed in a full-body cast, maintaining the maximum hyperextension. This cast was worn for a period of eight to twelve weeks.

Recently we have used a specially designed bed for the treatment of fractures of this type. Any degree of hyperextension can be slowly and firmly produced. This method has the great advantage of being almost painless, and it is no longer necessary to resort to the use of a plaster cast. The degree of hyperextension is governed by the amount of compression, as visualized in the lateral x-ray film. We usually take four or five days to produce the maximum degree of bending. The bed can be made in a few hours by anyone who is experienced in the use of tools. The ordinary Simmons hospital bed is employed, with eight- or twelve-inch cross-boards under a three-inch hair mattress.

Contraindications to hyperextension are:

1. Torn anterior vertebral ligaments.
2. Fractures of the laminae.
3. Fractures associated with cord lesions where open operation is indicated.

Fractures without deformity are placed in a plaster jacket in a mild hyperextended position. We use a table similar to the Goldthwait Frame (See Fig. 4), except that our table permits varying degrees of hyperextension. Lately, however, we are discarding the jacket for bed rest on a hard bed in a hyperextended position. This position is maintained for a period of three months. While this seems a long time, experience has taught us that the prolonged bed rest is compensated for in the freedom from pain and a quicker return to work. Before becoming ambulatory,

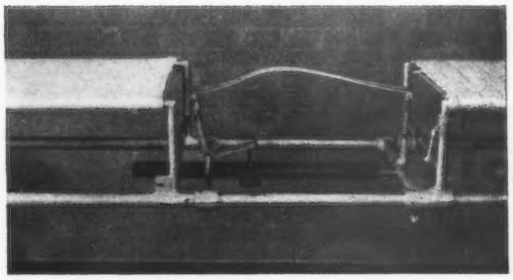

Fig. 4.—Goldthwait frame (as modified by authors).

each case is fitted with a long Taylor back-brace. This is worn for an additional period of three months.

Temporary total disability usually continues for from eight months to a year. The period depends upon the amount and severity of the man's work. Compensation and liability cases are, as a rule, disabled longer than those seen in private practice. The reason for this is obvious. Older people with hypertrophic changes complain of pain longer than younger individuals. Most cases have some permanent disability, as evidenced by pain and limited motion.

IN CONCLUSION

We have reviewed one hundred consecutive cases of compression fracture of the spine. All these cases were treated by some form of hyperextension. Adequate reduction has only been obtained in the past few years by sufficient hyperextension. The treatment on a hard, hyperextended bed of special arrangement gives the desired result and is certainly more comfortable. It produces less muscular atrophy, as a certain amount of motion and directed exercise is allowed, and the ultimate period of disability is thus shortened.

We have made a few slides showing some of the more important points in the construction of the bed and the treatment of this type of injury.

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DISCUSSION

Francis M. McKeever, M. D. (412 Medical Office Building, Los Angeles).—The treatment of compression fractures of the vertebral bodies by a "restoration of their normal anatomical contour" represents a marked advance in fracture therapy. A decade ago such fractures were permitted to heal in a position of deformity, or a large section of the spine was ankylosed by various types of bone-grafting operations, with the result that a "broken back" invariably resulted in a large disability.

Hyperextension of the spine, by whatever method obtained and maintained, does tend to restore the compressed vertebral body to its normal contour. The ingenuity of Doctors Morrison and Flamson in converting a simple standard hospital bed into an effective appliance for obtaining hyperextension of the spine by use of readily available materials is a distinct contribution to the fracture surgeons' armamentarium, and makes it possible for the proper treatment of acute compression fractures to be started even in less populous areas, for a hospital bed and planks are always available.

Whether three months' recumbency in hyperextension in all compression fractures of the spine is necessary, or even advantageous, I believe is open to some question. Ninety days of recumbency, despite daily physical therapy, results in marked atrophy of the musculature, not only of the trunk but of the extremities. A compressed fracture in the mid-dorsal spine in the concavity of the dorsal kyphos probably cannot be prevented from collapsing by any type of fixation in the early post-traumatic period when a patient is allowed to be ambulatory. However, a decompressed vertebral body in the midlumbar region, when it is on the convexity of the lumbar lordosis, will not collapse if the hyperextension of the entire spine is maintained by a well-fitting plaster jacket molded to the iliac crests and extending to the suprasternal notch. In such a jacket it is possible to permit ambulation in from ten to fourteen days after reduction, with no loss of reduction. This not only shortens the hospital period, but also maintains a better musculature and a better morale, materially shortening, as I believe, the period of disability.

Howard W. Fleming, M. D. (384 Post Street, San Francisco).—My discussion will be limited to intraspinal complications of compressed fractures of the spine. Many comparable series of cases suggest a larger percentage of cord and root complications. Radicular pain, areas of hyper- or hypesthesia, weakness, or impaired sphincter control, suggest the necessity of careful neurologic investigation. The possibility of late neurologic complication should be borne in mind. Repeated examinations often suggest treatment, especially when too rapid hyperextension is causing increasing pressure on the intraspinal contents. Extrusion or dislocation of part of the body or cartilage may occur some time after the original injury.

Laminectomy and decompression of the cord are seldom helpful when the paraplegia is immediate and complete. Usually the cord is traumatized so seriously that recovery of function is out of the question. The complete obstruction of the spinal canal is estimated by spinal puncture, and a positive Quackenstedt test suggests the necessity of decompression. It is impossible to distinguish between a complete anatomical and a complete physiologic lesion of the cord, and no doubt many cases are operated on unnecessarily.

Partial lesions of the cord, with evidence of a complete block, are amenable to treatment. Many of them recover without the aid of surgery. However, if close observation reveals increasing signs or symptoms of cord involvement, operation should be resorted to as soon as the patient's condition will permit. This viewpoint is probably too conservative, and many surgeons feel that a complete block is sufficient indication for decompression. Certainly, continued pressure interferes with proper circulation of the cord and maximum recovery.

The late neurologic complications of fracture of the spine are most amenable to surgery. Careful visualization of the canal with lipiodol will occasionally reveal partial blocks.

Lateral views taken with the patient in a prone position will often demonstrate deformity of the anterior part of the canal, due to dislocation of the disc or body of the vertebrae. Recognition of injuries in the lumbar region is especially important, as the structures of the caude equina afford an excellent opportunity for marked improvement, if not cure, as the result of treatment.

*

Arthur L. Fisher, M. D. (2000 Van Ness Avenue, San Francisco).—Since the passage of the industrial accident law in California the recognition of compression fractures of the spine has become a matter of daily occurrence. This was not true before the passage of this law, nor during the first years of its operation. In the file of records that I have (all cases seen while acting as medical referee for the Industrial Accident Commission), I have numerous ones recording that the injured man was treated for months, sometimes for years, for pain in his back, due to a compression fracture of the spine, in which diagnosis was not made simply because x-rays were not taken.

This, I repeat, was a common finding up to a comparatively few years ago. Of late years it is, fortunately, a rare one. The doctors handling industrial cases have learned to take x-rays that show the condition. It is no longer a matter of diagnosis, but a matter of the best form of treatment.

The treatment of these fractures has varied from the beginning, from merely making a diagnosis and letting it go at that, through the stages of simple rest in bed, fixation, or so-called fixation in a plaster jacket in slight superextension, rest on some sort of a frame in superextension, plaster jackets and rest in extreme superextension, braces (either the Brackett or Taylor types), and operative fixation of the Hibbs or Albee type, or a combination of the two.

Gradually the nonoperative methods have all come to utilize the principle of superextension—the individual method of superextension varying with the personal preference of the surgeon.

It is unquestionably true that a certain proportion, and perhaps a very large proportion, of patients suffering from these fractures get well if treated by superextension of the spine, and if the superextension is maintained long enough to give the bones a chance to become solid.

Superextension, I think, does two things. It tends to correct compression deformity and, if carried too far, may even overcorrect the deformity, and it throws the weight back on the lateral articulations, splinting the spine while healing is taking place. I think, therefore, that the method applied by the authors is to be greatly commended, in that they keep their patients in superextension, and also keep them recumbent for a period of three months, which is none too long, and afterward keep the spine relatively at rest by means of a Taylor spinal brace.

I am convinced that where superextension is the method of treatment it is incorrect to allow the patients to be up and about in plaster jackets or any other contrivances that may be used; because no contrivance can maintain the position of the spine so that the weight falls back on the lateral articulations, and does not jar the healing fragments.

In general, I would say that I agree with the treatment outlined in the paper. However, there is a certain group of cases in which none of the superextension methods seems to give relief. In this group the patients complain of pain and are definitely incapacitated, most of them totally incapacitated for long periods of time. The proper procedure in these cases is, I believe, a fixation operation that extends well above and well below the injured vertebra.

If we could tell beforehand which patients are going to have pain following the superextension treatment, there would be a great saving of time and discomfort if the operation were done as a primary procedure.

The authors point out torn anterior vertebral ligaments as one of the instances in which there is a contraindication to superextension. I think another contraindication to retention of the superextension method is in those cases in which the normal vertebral contours cannot be restored by a fair trial of superextension. There are probably others, but as yet I have not been able to formulate the indications for early fusion.

I think that if it be possible to make an early diagnosis of cases in which the superextension method will not give relief of symptoms, fusion should be done as early as possible before the patient learns the habit of pain. In private practice, in cases in which fusion has been done early, the patients are symptomless after a period of six to eight weeks, and are back at their occupations, no matter what those occupations may be, in a period of six months, and they do not have pain later in life.

I have seen quite a number of patients treated by superextension who have remained symptomless for a number of months, or even up to one or two years, and then pain has supervened. X-rays of such patients show that wedging of the vertebra has recurred with its consequent strain on the lateral articulations, and they have pain referred from these articulations down lower in the back.

To summarize, I would say that superextension treatment, as outlined in this paper, is the treatment to employ, and in a large proportion of patients it will be ample and efficient. In a certain number of others, for various reasons, it will fail, and in those cases resort must be had to a fusion operation.

INTESTINAL OBSTRUCTION: A ROENTGEN AND STATISTICAL STUDY*

By John F. Chapman, M.D.
Pasadena

Discussion *by R. R. Newell, M.D., San Francisco; L. H. Garland, M.D., San Francisco; John H. Breyer, M.D., Pasadena.*

THE study of intestinal obstruction, as here reported, was commenced about eight years ago at the Pasadena Hospital. At that time several cases suspected of having intestinal obstruction were referred in rapid succession. Correct diagnoses were made, and the attending physicians gradually became convinced of the reliability of roentgen findings in such cases. As time went on, more and more patients were sent in whose symptoms were not so suggestive, but it was desired to rule out obstruction. It then became necessary to make correct negative diagnoses as well as positive ones, and I began to keep records to determine the percentage of error in both types of cases.

* From the Pasadena Hospital, Pasadena.
Read before the Radiology Section of the California Medical Association at the sixty-fourth annual session, Yosemite National Park, May 13–16, 1935.

Table 1.—*Large Intestine Cases*

Operated cases	26
Not operated cases	12
Total	38
Operated cases correctly diagnosed	25
Operated cases not correctly diagnosed	1
Not operated cases correctly diagnosed	7
Not operated cases incorrectly diagnosed	5
Negative diagnoses correct	3
Negative diagnoses incorrect	0

METHOD OF PROCEDURE

The procedure is to take plain roentgenograms of the abdomen with the patient in the prone position. No patient suspected of having an intestinal obstruction is given barium by mouth. Barium enemas are given in cases where there is still doubt as to the location of the obstruction, or where the history and physical findings are suggestive of a large intestine obstruction. This procedure causes little delay, but sometimes it is a real ordeal for the patients, for as a rule they are very sick individuals. It is done, therefore, with as little disturbance of the patient as possible.

LARGE INTESTINE GROUP

The cases of obstruction in the large intestine have been included in the statistical study to show their relative frequency, and the location in the large intestine of the obstruction, as well as to test the accuracy of diagnosis. Tables 1 and 2 show these results graphically. It will be noted that of the operated cases, 96 per cent were correctly diagnosed; of the non-operated cases, only about 58 per cent were correctly diagnosed, while all of the negative diagnoses were correct.

SMALL INTESTINE GROUP

The tabulation of small intestine cases shows that approximately 80 per cent of correct diagnoses have been made, whether the case was operated or not operated, and whether the diagnosis was a positive or a negative one. In the operated cases the correctness of the diagnosis was based upon the surgeon's operative report. In the not operated cases the correctness of the report was

Table 2.—*Location of Obstruction, Large Intestine Cases*

Sigmoid flecture	15
Descending colon	5
Transverse colon	4
Splenic flexure	1
Ascending colon	1

TABLE 3.—*Small Intestine Cases*

Operated cases	126
Not operated cases	36
Total	162
Correct diagnosis, operated cases	102, or 81 per cent
Incorrect diagnosis, operated cases	24, or 19 per cent
Correct diagnosis, not operated cases	31, or 86 per cent
Incorrect diagnosis, not operated cases	5, or 14 per cent
Negative diagnosis correct	46, or 79 per cent
Negative diagnosis incorrect	12, or 21 per cent

based upon the subsequent course in each individual case, or upon the autopsy report, if there was one. If the patient went home much improved within a few days, and a negative report was made by me, this was considered correct, even though in some cases a clinical diagnosis of obstruction was written on the record.

Negative diagnoses were made on both operated and not operated cases. The correctness of the diagnosis was judged in the same manner as the positive diagnoses, and they seem to me to be fully as important as the positive diagnoses.

The location of the obstruction in the small intestine was not noted in the record in many of the cases. Undoubtedly this often was simply an omission of the surgeon, but frequently it would appear on the record that the exact location of the obstruction was not discovered, due to massive adhesions, dilatation of intestinal loops, and other factors making identification of location of the obstruction difficult and, indeed, unimportant, so long as the obstruction could be relieved. In the cases where the location of the obstruction was recorded, the findings are given in Table 4.

TABLE 4.—*Location of the Obstruction*

Terminal ileum	56, or 87 per cent
Duodenum	4
Jejunum	4

FINDINGS AT OPERATION

A tabulation of the conditions found at operation shows graphically the commonest, and also some of the rarer causes of obstruction.

TABLE 5.—*Conditions resulting in Obstruction, Small Intestine*

Adhesions of all sorts	74, or 59 per cent
Acute appendicitis, with abscess	8
Volvulus, terminal ileum	5
Carcinoma, or carcinomatosis	4
Gall-stones along the intestine	3
Meckel's diverticulum	2
Intussusception, terminal ileum	1
Femoral hernia	1
Pelvic abscess	1
Ovarian cyst, with twisted pedicle	1
Chronic productive inflammation of ileum	1
Polyp, terminal ileum, intussusception	1
Tuberculous peritonitis	1
Hernia of whole small intestine into lesser peritoneal sac	1
Perinephric abscess	1

TABLE 6.—*Patients Who Had Previous Abdominal Operations*

Patients previously operated upon	93
Appendectomy	47, 8 within 4 weeks
Hysterectomy	13
Cholecystectomy	11
Hernia	6
Intestinal obstruction	4
Carcinoma	5
Salpingectomy	4
Ovarian tumor	2
Uterine suspension	2
Not over one each of other abdominal conditions.	

It will be noted from the above that adhesions of one sort or another play the most frequent part in producing intestinal obstruction, and, as might be expected, appendicitis comes next. The most surprising finding to me was that three out of one hundred and twenty-six operated cases of intestinal obstruction were due to gall-stones found along the course of the small intestine, one in the duodenum, one in the jejunum, and one just proximal to the ileocecal valve. They were all large stones, and were liberated from the gall-bladder into the small intestine by ulceration. Two cases were of unusual interest. One was recorded as chronic productive inflammation of the ileum. A segment of the ileum eight inches long, and another twelve inches long, and not far above the ileocecal valve, were almost completely occluded by overgrowth of connective tissue in the wall of the gut. The etiology was not determined. Grossly the gut felt like tumor, but no evidence of malignancy was found. The other was reported as a polyp of the terminal ileum, causing intussusception. The polyp had passed through the ileocecal valve, dragging with it a segment of the terminal ileum. Pathological examination of the polyp showed it to be a lipoma.

PREVIOUS ABDOMINAL OPERATIONS

A very important question in all cases of intestinal obstruction, as will be seen from a glance at Table 6, is whether or not the patient has had a previous abdominal operation.

DURATION OF ILLNESS PRIOR TO OPERATION

I found it exceedingly difficult to obtain data on the length of time the patients had presumably had their obstruction before they reached the

TABLE 7.—*Duration of Illness, Operated Cases, Small Intestine*

		Died	Recovered
Less than twelve hours	3	1	2
Twenty-four hours	27	4	23
Forty-eight hours	18	5	13
Three days	14	4	10
Four days	14	6	8
Five days	1	1	0
Six days	5	2	3
One week or more	17	7	10

hospital. Wherever possible I obtained this information by directly questioning the patient, for there were very few case records containing this important detail. I am showing a tabulation of the combined records of the attending physicians and myself; for though they are necessarily inaccurate, and decidedly influenced by the personal equation, they are, nevertheless, instructive:

A glance at the table shows that time is a most important factor. The table is peculiar in that there are more cases of a week duration or more than for several days less. A study of the case histories makes it clear that this group includes, or is mostly made up of, cases of partial obstruction, or cases of a more chronic nature because of etiologic factors.

COMMENT

Conditions Other Than Obstruction Which Produce a Similar Roentgen Picture.—Such conditions were not well shown in this series, because there were not many of them. Any condition which will produce a paralytic ileus will give a similar roentgen picture. Peritonitis will produce it, and there were five such cases in the series. Tuboovarian abscess with plastic exudate, fibroid with twisted pedicle, appendicitis, cholecystitis, mesenteric thrombosis, thrombosis of the vena cava, and pneumonia, were all found in this series, causing a similar roentgen picture. These cases were so few, however, that I began to watch the gastrointestinal studies, and especially the studies of the urinary tract, to see if I could find shadows of dilated gas-filled segments of small intestine. Seldom could evidence be found in any of these of enough gas in the small intestine to dilate it.

The use of morphine or similar drugs was always watched for, for it puts the bowel at rest, and the gas formed in it does not pass on and tends to accumulate. When I knew that such drugs had been used, I was always more conservative in my opinion. Such cases were not listed, so that I now have no accurate record of them; but I believe the knowledge that morphin had been used was one of the chief factors in the making of some of the correct negative diagnoses.

Why do some cases early produce a large accumulation of gas and others a small amount, even after the history indicates that obstruction must have been present for several days? The answer which one immediately thinks of is that cases where obstruction is complete, or where there is actual strangulation, produce gas in quantity early. This is often, but not always, true, and it is not, I believe, the full answer. An understanding of the mechanism of gas production and absorption in the gastro-intestinal tract, both in health and disease, will be necessary before this is fully understood. This may be of academic rather than of practical interest, for when confronted with an individual problem the procedure should be prompt and bold diagnosis, followed by immediate action. Nevertheless, a rather superficial search of the literature on intestinal flatulence showed that some careful consideration of this question has been given by well-trained observers. For those interested, I would refer to an excellent article by John L. Kantor, entitled "A Study of Intestinal Flatulence," which appeared in the *Annals of Internal Medicine,* Vol. 3, No. 5, November, 1929, and to the bibliography there appended. Briefly, it there appears that the absorbability of the gases found in the intestine varies tremendously. Carbon dioxid, which is derived from food, is very readily diffused through the intestinal wall in either direction. Nitrogen, on the other hand, is as inert as usual, and when it passes into the tract is not absorbed and has to make the transit of the tract. The other gases, such as hydrogen sulphid, oxygen, hydrogen, and methane, have an intermediate absorbability. In the flatus it is the unabsorbable gases which predominate, as analyses of flatus has proved. The normal physiology of gas production and absorption must be profoundly upset in the presence of intestinal obstruction. I have discovered no record of the gases found behind obstruction in the small intestine. The liquid contents behind obstructions must also be altered, and are of equal or greater importance.

DIAGNOSIS

What are the minimum findings which will warrant a diagnosis of intestinal obstruction? By the procedure I have so far used, I am unable to distinguish intestinal obstruction from peritonitis, or paralytic ileus, or from some other abdominal conditions which apparently react on the peritoneum or upon the gut itself. It follows that I do not place entire faith in the roentgen picture. But a consideration of the history of the illness, and consultation with the attending physician should make it possible to avoid errors. Repeatedly I have found it safe to diagnose obstruction after such a consideration of the data when not more than five or six inches of dilated gas-filled small intestine could be recognized on the roentgen film. On the other hand, the series has repeatedly proved that it is unsafe to diagnose obstruction from the film alone, even if most of the abdominal area is covered with shadows of dilated gas-filled small intestine. I have taken the stand that in the presence of such a serious condition, and where time is of such prime importance, one is justified in being somewhat radical rather than conservative. My experience has been that attending physicians need the encouragement of a bold diagnosis, rather than the negative assistance of a timid one. I have been blamed but once for so doing. One must be willing to take the consequences.

SUMMARY

An intensive study of two hundred cases of suspected intestinal obstruction has been made. A procedure has been used which causes but little delay and as little disturbance of the patient as possible. It has been shown that, by following this procedure boldly, approximately 80 per cent of correct diagnoses have been made on cases which have come to operation. Negative diagnoses, which are fully as important, have been cor-

rect in 79 per cent of cases. In cases not operated upon, 86 per cent of correct diagnoses have been made. The location of the obstructions in both large and small intestines has been shown by tables. The various conditions resulting in obstruction, and the conditions simulating obstruction, have been shown by tables. The importance of the history of a previous operation has been pointed out. An attempt has been made to demonstrate the importance of time. It is believed that if attending physicians and surgeons wish information on the question of intestinal obstruction, the roentgenologist, as a consultant, can be relied upon.

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DISCUSSION

R. R. NEWELL, M. D. (Stanford University Hospital, San Francisco).—The matter discussed by Doctor Chapman is of great importance, for the radiologist's opinion is often the deciding factor for or against operation. To delay operation for more certain clinical signs may reduce the prognosis from pretty good to only half a chance of recovery. Doctor Chapman's tables only bear out the experience of others in this.

He is quite right not to put entire faith in the roentgen evidence. Paralytic ileus may be indistinguishable from organic obstruction. Even a bad pain in the belly, as from ureteral stone, may lead to gas-filled loops of small bowel. It is not always easy to distinguish large-bowel gas (innocent meteorism) from gas distending the ileum. Barium enema will permit one to make sure, and need disturb a very sick patient but little.

I have seen intestinal gas disappear completely from a case of obstruction of three days' duration.

If the patient can stand or sit, a film taken with x-ray directed horizontally gives a much clearer picture of distended loops of small bowel filled half with gas and half with fluid. I look on this technique as standard, rather than the prone position used by Doctor Chapman.

In a case of partial obstruction not localized by barium enema, if clinical evidence does not warrant immediate exploration, I consider it proper to give a moderate amount of barium by mouth. I would examine, fluoroscopically, every hour or so thereafter. One supposes that the radiologist and the surgeon are working in concert on all cases of suspected obstruction, and they must both realize that barium drunk may easily convert a partial obstruction into a complete one, and so force the surgeon's hand.

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L. H. GARLAND, M. D. (450 Sutter Street, San Francisco).—The earliest roentgen evidence of obstruction consists of an accumulation of gas proximal to the point of obstruction. Gas accumulation is found earlier and to a greater degree than is fluid accumulation (Ochsner). Sufficient gas accumulation to diagnose ileus has been observed as early as one hour after the onset of strangulated jejunal obstruction, and three hours after a simple jejunal obstruction. The lower the site of the obstruction, the greater the accumulation of gas and fluid.

The diagnosis of intestinal obstruction in its late stages is simple; the diagnosis in its early stages is difficult, but of far greater importance. Doctor Chapman wisely has emphasized the value of one or two dilated gas-filled loops of small intestine. Such a finding alone is not conclusive, but in conjunction with the clinical history is of major value in making an early diagnosis. As Doctor Chapman remarks, the radiologist must be prepared to be bold in making his interpretation.

The importance of finding out whether or not the patient has had morphin or other narcotic drug cannot be overemphasized; small-bowel stasis and dilatation are frequently seen following therapeutic doses of morphin. The frequency of meteorism in patients undergoing pyelographic examination must also be remembered.

In chronic obstructive lesions of the small intestine the dilatation of the jejunum or ileum can be enormous; we have seen two cases of carcinoma of the small intestine in which it was difficult, from the plain films, to state whether the dilated bowel was the small bowel or colon. The "ribbed" pattern of the jejunum was almost obliterated by the dilatation, but the shallow "ribs" still visible were sufficiently close together to suggest jejunal plicae rather than the colonic haustra.

All of the roentgenograms in Doctor Chapman's series were made with the patient prone. We have found it of value in many cases to make a vertical film as well (the patient sitting or standing, depending on his condition). The location of the fluid levels in the vertical film, in conjunction with the location of the gas shadows in the horizontal film, have been of value in localizing the point of obstruction; it is always difficult, of course, to do more than roughly approximate the exact area. One's tendency is to locate the point of obstruction much lower than it actually is.

In addition to diagnosing the presence of intestinal obstruction, one may frequently determine its *exact nature* by roentgen examination, especially in large-bowel lesions. Carcinoma, appendiceal abscess, intussusception, hyperplastic diverticulitis, ileocecal tuberculosis, and solitary polyp formation, may all present typical findings to the trained observer.

❋

JOHN H. BREYER, M. D. (65 North Madison Avenue, Pasadena).—Doctor Chapman's analytical study and report should give us the courage to make earlier diagnoses. The death rate from intestinal obstruction is still frightfully high, and it can be lowered only by earlier diagnosis and prompt surgery. The roentgenologist gives us most important information early. The first step, of course, is a careful history-taking, an analysis of the onset of the attack and the physical examination. This should make us suspicious of the acute intestinal obstruction. Every means of corroborating this diagnosis must be employed. I consider the flat x-ray plate the next in importance. It is not necessary that the extremely sick patient be taken to the x-ray room. A portable x-ray apparatus can be used at the bedside, thus avoiding inconvenience or injury to the patient. The carrying out of other medical procedures need not be interfered with, and the strength of the patient is conserved. The next important tests are the blood chlorid and CO_2 determinations. Other corroborating tests should not be ignored, provided they are not too time-consuming, even though the x-ray findings are positive for intestinal obstruction. In our effort to make haste, we must not forget that the time used in restoring body fluids, the chlorids, and the giving of glucose intravenously, is time well spent.

Doctor Chapman speaks of negative or indefinite x-ray findings. I believe that the roentgenologist, when he analyzes the history and other corroborative evidence, as well as his own, becomes a very valuable consultant, because more intestinal obstruction cases come under his observation than that of any other member of the hospital staff.

The physician very often needs to take a positive stand when the case is first seen by him, and the surgeon often needs positive consultation in his own cases when intestinal obstruction develops in the postoperative period.

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DOCTOR CHAPMAN (Closing).—Two of the discussers have mentioned the advantage of taking the roentgenograms of the abdomen with the patient in the erect position. I would long since have taken many of the roentgenograms in the erect position had our apparatus made it feasible.

Doctor Breyer mentioned that the examination may be done in the patient's room with a portable machine. I believe this could be done; but the constant tendency is for attending men to ask for work to be done with the portable machine which could be much better done with the larger machines, and which the portable machine cannot do satisfactorily because of its limited voltage and milliamperage.

THE TREATMENT OF VARICOSE ULCER AND VEINS*

By John M. Schmoele, M.D.
Los Angeles

Discussion *by Nelson J. Howard, M.D., San Francisco; E. Vincent Askey, M.D., Los Angeles; Norman J. Kilbourne, M.D., Los Angeles.*

THE injection treatment of varicose veins is at this time so generally accepted by clinicians that the operative excision method is considered more or less obsolete. Kilbourn,[1] after an extensive survey, including questionnaires to many leading clinics, considers the morbidity following the injection method so favorable, as compared to the operative excision, that the latter is coming to be regarded as both relatively dangerous and unsatisfactory. This survey included over fifty-four thousand cases.

Personal experience, including over eight hundred persons treated for varicose veins and ulcers by the injection method during the past seven years, has led me humbly to offer certain observations, which must certainly add evidence as to the safety and value of this procedure.

PHYSIOLOGY AND ANATOMY

In the erect posture, the propulsive action of the heart beat and arterial pressure have little influence on the venous circulation of the lower extremity. The extensive area of the capillary bed, as compared to the cross section of the artery, produces an almost zero pressure. The deep venous circulation is produced by the pumping action of the muscles of the leg as they press on the veins, which in turn are equipped with valves to prevent back flow.

It is this pumping action of the leg muscles which propels the blood from one vein chamber to the one above, thus producing an upward emptying of the veins. Any condition which cripples this venous pump, such as incompetence of the valves, immobilization in a plaster cast, etc., cripples the venous flow from the leg, unless the extremity is elevated to approximately the level of the heart. The superficial veins do not have this muscular support, and hence are not directly influenced by this muscle-pumping action. However, they are provided with numerous communicating branches, with their valves so placed that there is a constant onward flow into the deep veins.

Negative pressure during respiration and positive abdominal pressure are other factors in producing venous circulation.[2] As the abdominal veins have no valves, increased abdominal pressure sends the blood back against the veins in the legs, as well as into the thorax. Thus, during violent abdominal straining, the back pressure into the veins of the thigh is greatly increased; but as the deep veins are supported by the muscles of the leg, the superficial veins are subject to the full pressure. If we consider this intra-abdominal pressure, plus a normal hydrostatic pressure, we can easily conceive why varicose veins are so common.[3] I am convinced that mechanical back pressure is the major explanation of varicose veins, although we must consider congenital and hereditary weakness, as well as other undetermined factors which we are unable to recognize.

The valves in the communicating veins between the superficial and deep circulation are of major importance. If these valves are competent, the blood flows from a superficial dilated varix into the deep circulation, and no harm is done, except to add to the burden of the deep veins. This type of varix is manifested clinically as fatigue and heaviness in the leg, which the victim does not usually associate with his veins. However, if the communicating veins do not have competent valves, the surface varicosities are not as effectively decompressed. In this instance, blood from the deep veins leaks into the superficial group and reënters at another communicating vein lower down, thus producing a vicious circle. This phenomenon has been demonstrated many times under the fluoroscope, following Lipodol injections.[4]

VARICOSE ULCER

The venous back pressure on the capillary circulation becomes most abnormal and extensive. As capillary permeability is known to be affected by this back pressure and also by the increase of carbon dioxid and the lack of oxygen, there are produced definite nutritional changes in the leg.[5] Pigmentation, as the result of increased capillary permeability and diapedesis of red blood cells, is a most important diagnostic sign of impaired nutrition caused by varicose veins, even though the veins are not visible.[6] This condition precedes the development of what is termed "varicose ulcer." When the actual ulcer does develop, there is added to the already devitalized area the element of infection, accompanied by edema or cellulitis.

TREATMENT OF VARICOSE ULCER

Varicose ulcers, as we all know, respond to any treatment which relieves the venous back pressure and increases the capillary circulation through the tissues. Thus, rest in bed, with elevation of the affected leg, will invariably be of benefit. It has been our practice in these cases, when we consider the deep circulation patulous, to sclerose chemically all visible varicose veins by the injection method. The ulcer locally is dressed with a dry, absorptive dressing and compressed tightly with an elastic bandage, under which is placed a soft rubber sponge. At night the sponge and the bandage are removed, and the leg is elevated so as to utilize the force of gravity, to stimulate venous circulation.

In a series of fifty-three cases of chronic varicose ulcer treated by this method, the clinical results, as observed by accurate follow-up, have more than fulfilled our expectations. Some forty-five have reported complete cures; three report a return of the ulcer and from five we have received no answer to our communications.

* Read before the General Surgery Section of the California Medical Association at the sixty-fourth annual session, Yosemite National Park, May 13–16, 1935.

MALIGNANT LEG ULCERS

When the deep veins have been damaged by a phlegmasia albadolens or a severe phlebitis, the problem of treatment becomes more complex. In this condition, there is not a diminution in the caliber of the veins, but an incompetence of the valves. Hence, we have venous back pressure greatly increased and the capillary pressure diminished. These cases present a pitiful but characteristic picture—edema, ulceration, infection and, in some cases, elephantiasis. Varicosities are also present, but chemical obliteration by sclerosing agents is of little benefit, as in this condition the deep tissues as well as the superficial are involved. Bandages also are of little aid. Any grafting operation will not succeed on account of the poorly nourished tissues.

TREATMENT OF MALIGNANT ULCER

Recently in treating this type of ulceration, we have used an ambulatory method consisting of frequent elevations of the leg, which utilizes the force of gravity to empty the veins of stagnant blood. The patient places a rope and pulley over the foot of the bed, and for five minutes each hour during the day, reclines and suspends the affected leg perpendicularly from the pulley. At night, the leg is elevated on pillows. As far as we know, this method is original, and in the few cases upon which we have based our observations, the results have been most satisfactory. Following this ambulatory treatment, or after a long continued rest in bed with constant elevation of the leg, the edema and induration will subside and the ulcer may be operated according to the method of Homans.[7] The entire ulcer area, including the scar tissue and underlying fascia, should be excised and Thiersch grafts laid on the deep tissues.

PRELIMINARY TESTS

Before proceeding with the obliteration of the varicose veins, it is necessary to determine the patulousness of the deep venous circulation and also absence of arterial disease. In obese individuals, it is often difficult to accurately locate the femoral-saphenous opening; hence the Trendelenberg test in our practice has been supplemented by a modification of the Perthe test.

Instead of applying the tourniquet above the knee, the foot and leg are tightly bound with an adhesive elastic bandage, and the patient is instructed to walk for fifteen minutes. If no pain is produced by this procedure, we consider the deep venous circulation patulous and feel that it is reasonably safe to proceed with the injection of the varicose veins. It is most important that a careful medical examination be made and syphilis be eliminated. Any deformities of the feet should be corrected. Fallen arches particularly should be supported by strapping or by properly fitting appliances.

SOLUTIONS USED

We have used at times practically all the sclerosing solutions which have been suggested—20 to 30 per cent sodium chlorid, 50 per cent glucose or dextrose, 50 per cent invert sugar, 2 per cent quinin and urethan, 30 per cent sodium salicylate; but have found that for general use, a 3 to 5 per cent aqueous solution of sodium morrhuate is the least toxic and the most satisfactory.

TECHNIQUE OF INJECTION

The sclerosing solution is injected with the patient either standing or sitting, in order to distend the veins and make the introduction of the needle easier. As soon as the needle enters the vein, the leg is elevated so as to bring the chemical into direct contact with the intima. We rarely use a tourniquet except in sclerosing segments of very large varices. Never more than one or two veins are injected during the treatment, in order to minimize any disability which may occur.

It has been our practice to follow each injection with an infiltration of Ringer's solution.[8] This procedure dilutes any of the sclerosing agent which may have escaped accidentally into the tissues, thus preventing sloughs. Following the injection, when the resulting thrombus is large, the application of an elastic bandage will give much support and comfort. In small veins this is not necessary.[9] We feel that ligation of the internal saphenous vein is an unnecessary procedure, and have discontinued the practice.

SUMMARY

1. The injection treatment is a safe and practical procedure for the obliteration of varicose veins in properly selected cases.

2. In simple trophic leg ulcer the obliteration of existing varices is a valuable therapeutic aid, provided the valves of the deep veins are competent.

3. For leg ulcer associated with edema, cellulitis, pigmentation and evidence of deep valvular incompetence (malignant ulcer), the injection of existing varices is of little benefit. Treatment should include frequent emptying of the vein by gravity, compression by bandages, and excision followed by skin grafts.

1930 Wilshire Boulevard.

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DISCUSSION

NELSON J. HOWARD, M. D. (350 Post Street, San Francisco).—None of us will disagree with Doctor Schmoele in regarding injection thrombosis as the treatment of choice in dealing with varicose veins. It is very important for every practitioner to have in mind the altered physiologic and anatomic factors present in this condition, and so well summarized by Doctor Schmoele, in order to be able to treat competently the varied pathologic stages presented by the individual varicose patient. The gravity method of relief of venous stasis and tissue edema is a very valuable one and, as emphasized by Doctor Schmoele, does not take the place of compression bandage therapy, but supplements it. The use of the rubber or sea sponge beneath the elastic compression is not necessary, in my experience, if *sufficient* and *continued* elastic compression is maintained. Unna's paste boots applied to the huge, soggy, edematous limb without compression, fail to accomplish a cure of the ulcer. Previous elevation of the limb and gravity reduction of the edema, followed by the application of a Kleebro elastic adhesive bandage (or less comfortable, an Ace elastic bandage), and reinforced by repeated layers of Unna's paste, gives good continued sufficient elastic support to allow the ulcer to heal. It goes without saying, that the veins should receive thrombosing injections.

I do disagree with Doctor Schmoele in his use of the term "malignant ulcer," which, with accuracy, should be reserved for actual neoplastic changes arising in the scar of a healed ulcer, or in the unhealed margins of a long-existing chronic ulcer. My own belief is that every varicose ulcer can be healed, except those in which the deep veins are of insufficient caliber, and in which repeated thrombosis prevents sufficient recanalization to restore an adequate lumen for return of blood to the body. Edema, ulceration and infection may exist, but as long as the deep veins are sufficiently patent, competent or incompetent, I feel the ulcer can be healed by simple means. Long duration of the ulcer, presence of edema and eczema are no bar to success, and these cases cannot justly be said to possess a malignant ulcer. Huge ulcers, unhealed for 40, 31 and 22 years, with brawny edema and eczema, but with patent deep veins, have responded with healing in eight weeks or less, if obliteration of superficial veins is combined with adequate continued elastic support. Operation and skin-grafting were found unnecessary. Doctor Schmoele rightfully emphasizes the necessity of testing for *sufficiently* deep vein patulousness. In ulcer cases, with occlusion of the deep set of veins, I have not as yet found a satisfactory method of treatment.

A real advance would be secured if the medical profession as a whole would attempt the prevention of varicose veins. Varicose veins have no common cause. In certainly a third of the patients, they first are manifest in adolescent or early adult years, presumably through a congenital type of variation in vein-valve development. However, the thrombophlebitis following childbirth, operation, infectious diseases and trauma, are followed in a surprising number of cases by varicosities. Early and continued use of elastic support of the limbs of those patients with thrombophlebitis or edema is imperative, whether the condition follows childbirth, operation, or trauma. Adequate support to the superficial saphenous system, from the moment the patient is ambulatory, prevents the increase of edema, accelerates the recanalization of the deep thrombi, and tends to prevent or minimize future development of varicosities of the superficial saphenous system.

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E. VINCENT ASKEY, M. D. (1930 Wilshire Boulevard, Los Angeles).—The injection treatment of varicose ulcer and veins has received, deservedly, so much discussion in the past few years that a simple understandable presentation of the factors involved and the treatment now in use is of practical value.

Doctor Schmoele has outlined in clear language the problem—the necessary Trendelenberg and Perthe tests (which are so often unknown to or neglected by the physician with little experience in this problem), and he has given the exact technique and the precautions to be observed, so that I feel therein lies the value of his paper. It is concise, definite, inclusive.

Doctor Schmoele's procedure, of regular hourly elevation of the leg in the treatment of "malignant" ulcer, I feel is a worthwhile innovation in that it avoids absolute inactivity and allows the patient to be ambulant. The morale of the patient and his coöperation will be increased because he will feel that something definite and of great importance is being done which he can see and of which he is a definite part. The psychology of this in itself is of value, and this procedure could be adopted with profit by all of us in the treatment of this condition.

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NORMAN J. KILBOURNE, M. D. (2007 Wilshire Boulevard, Los Angeles).—The author is correct in advising pressure with the rubber sponge instead of the now antiquated Unna's paste boot. He is also right in the use of a dry dressing. Strips of cellophane paper across the wound will keep the dressing from sticking. This is a better treatment than the use of the many ointments.

In the treatment of ulcers associated with chronic infection of the lymphatics, hot compresses are helpful.

When there is a question as to whether pain in the legs is due to varicose veins or fallen arches, it is more likely to be due to varicose veins. However, certain cases, in which pain persists after injection of veins, will be relieved if referred to an orthopedic man for arch support.

Solution of sodium morrhuate is valuable in small veins where there is a possibility of extravasation, for the sloughs due to extravasated sodium morrhuate will heal more quickly than sloughs due to extravasated quinin. Sodium morrhuate is a soap which is so very variable in composition that potassium oleate is preferable. Potassium oleate is a similar soap, which is not only cheaper but definite and of invariable composition and effect.

In cases where there is a history of phlebitis and also in large veins with increased danger of phlebitis, quinin urethane solution is still preferable because it is bactericidal. The quinin remains in the tissues for more than five days and so affects the surface tension on the outside of the leukocytes that it prevents phagocytic action which might loosen the thrombus. Potassium oleate with a small amount of quinin added is now available. The author's attitude on ligation of the saphenous vein is correct.

PIGMENTATION OF METABOLIC ORIGIN: ITS RELATION TO THE AUTONOMIC NERVOUS SYSTEM*

By IRVING BANCROFT, M.D.
Los Angeles

DISCUSSION *by H. P. Jacobson, M.D., Los Angeles; Sophie A. Lurie, M.D., Los Angeles; George V. Kulchar, San Francisco.*

THIS discussion is intended to be limited to the influence of the autonomic nervous system on abnormalities of pigmentation. The influence of light on pigmentation will not be touched upon. Neither will the causes of various hematogenous pigmentation be gone into. An attempt will be made to explain certain facts about metabolic pigmentation and the formation of melanin.

ORIGIN OF PIGMENT

Certain types of pigment definitely originate in extravasated or stagnant blood, but melanin definitely does not originate from the blood. It contains neither sulphur nor iron, which are essential elements in blood. Moreover, Eirowsky[1] has shown that melanin production can occur in portions of skin which have been cut off from the general circulation, and also in Thiersch grafts *in vitro*.

* Read before the Dermatology and Syphilology Section of the California Medical Association at the sixty-fourth annual session, Yosemite National Park, May 13-16, 1935.

Block and other German workers have devised some very complicated theories based on experimental facts, which are essentially as follows: The cells which are capable of producing melanin, or which contain melanin, are confined to the basal layer and to the deeper portions of the rete malpigii in light-colored races. These cells contain a chemical substance which is capable, under certain circumstances, of being so acted upon that melanin particles are deposited in the upper part of the individual cell. This reaction can take place artificially *in vitro* as well as naturally in the body. The synthetic chemical substance which is capable of bringing this about is called "dopa," and the word is derived from the first letters of a complicated organic compound. Dopa is a derivative of tyrosin, and if it is left in contact with frozen sections of human skin, certain cells of the basal layer become darkened, and this darkening corresponds with the degree of pigmentation of the skin which is used in the experiment. The same phenomenon occurs if dopa is incubated with human skin. But if the skin is heated, or if low concentrations of cyanid are allowed to be in contact with the skin, no dopa reaction or darkening takes place. This would seem to indicate that an enzyme is concerned in the process. In the skin of an albino, or in that taken from an area of vitiligo, no dopa reaction takes place. In other words, the elements capable of making melanin are absent from that area. The cells which are capable of developing melanin are called melanoblasts, and their number varies in different races, individuals, and localities.

AUTONOMIC NERVOUS SYSTEM

Briefly reviewing certain familiar facts about the autonomic nervous system, you will recall that the sympathetic nerve system is that section of the autonomic nervous system which arises from the dorsal nerves. This section of the autonomic system is distributed to all the smooth muscles and glands of the body. When it meets nerves from the cervical and lumbar sections of the autonomic nervous system in any organ or gland, its action is opposed to that of the local nerve. When this balance is perfect, the parts served are in a normal state; but when one set is stronger, a state of malfunction exists. This state of malfunction is often local and temporary, or may, in certain cases, be permanent. Temporary ascendancy of one or the other opposing nerves is dependent directly on emotions, and is usually not subject to voluntary control.

Anatomical and physiological researches show that all glands have a very rich nerve supply which comes from the autonomic system, and that changes in glandular activity are dependent upon stimulation of the accelerator or depressor branches of the autonomic nervous system.

INFLUENCE OF THE GLANDULAR SYSTEM ON PIGMENT FORMATION

The influence of the glandular system on the formation of pigment is not definitely known, but it is generally understood that the pituitary, adrenal and thyroid glands, at least, have some influence on the formation of pigment; and it is also generally understood that these three glands have a definite relation to each other. If thyroidectomy is performed, the pituitary gland increases in size, and if certain hormones obtained from the pituitary gland are injected into an animal, the epinephrin content of the adrenals is reduced.

Adrenal Glands. — From the medulla of the adrenal gland may be extracted a substance commonly called epinephrin, which has most extraordinary qualities. It stimulates the sympathetic nervous system just as though it were stimulated by nervous impulse. If injected into the blood, it causes blood sugar to increase, even to the point of glycosuria, the pupils to dilate, the blood vessels to contract, and the hair to stand erect. Even after the organs are removed from the body and kept in salt solution, the same effect takes place. It may be demonstrated by its action on the muscle of rabbits in amounts as small as one part in two hundred million (Cannon),[2] and on the heart muscle by one part in 1,400,000,000 or one drop in 22,786 gallons.

Diminished adrenal secretion, as observed in Addison's disease, is always accompanied by abnormal pigmentation which varies in color from light yellow to brown, or even black. The physiological explanation of this hyperpigmentation is that the defective adrenal glands fail to remove the substance in the blood which is the normal precursor of epinephrin, and that, as a result of this failure, there is an abnormal amount of this substance in the blood, and it acts just as dopa does. In fact, it is probable that it is identical with dopa in chemical composition.

Thyroid Gland.—Abnormal pigmentation sometimes occurs in hyperthyroidism, and according to Perrin[3] even regresses parallel with the decrease of thyroid secretion, and after thyroidectomy it disappears in a few days. The abnormal pigmentation which I have observed in hyperthyroidism is diffuse and not marked, and limited to the upper part of the chest and neck.

Pituitary Gland.—The pituitary gland, which physiologists tell us weighs about ten grains, also has some connection with pigment formation. It has a definite influence on the chromatophores of cold-blooded animals, and injection of an extract of the pituitary has the power to quickly cause color in those animals to darken. The amount of hormone which causes a deep red color to appear over a certain small area is called a phoximus unit, and is used as a definite measure of the melanophore stimulating hormone. Lack of this hormone in lower animals also causes loss of pigment. Beyer[4] cites a case in which an especially light-colored frog was found to have a pituitary gland in which the pars intermedia was entirely destroyed by a peculiar parasite.

COMMENT

Cannon and Brittan[5] showed, by the following experiment, that adrenal secretion was definitely dependent on the sympathetic nervous system. A cat, whose heart had been completely denervated, was confronted by an aggressive dog, and re-

sponded by all signs of anger, including standing of hair and acceleration of the heart beats by as much as fifty beats a minute. Afterward, the same experiment was performed, but the adrenal glands were inactivated: this time the heart beat did not increase in rate at all, or in some cases not more than two beats a minute.

Eliot[6] stated that the iris of a cat's eye, after being deprived of its sympathetic nerves, was dilated more widely than normal when it became angry, and that this effect failed to occur if the adrenal glands were removed.

Clinical facts regarding the rôle of emotion as a factor in sympathetic unbalance are less definite than animal experimentation, but nevertheless are noteworthy. Maranon[7] has collected an extensive series of cases of hyperthyroidism brought on by war experiences. Emerson[8] cites a case in which "the fiancée of a young man pretended to commit suicide in his presence. He departed hastily, and within a week had a swelling of his thyroid region and was nervous. Four months later he presented a large goiter, and his basal metabolism was up 24 per cent."

Cannon[9] also states definitely that emotional shock is sometimes followed by permanent diabetes.

REPORT OF CASES

Case 1.—One of the most marked personal experiences of that sort was that of a boy of nine who, for punishment, was put in a closet one Friday afternoon by his teacher. She went home and forgot him until late that night. Soon after this, he developed vitiligo and his hair turned iron-gray. His mother said that his hair turned gray the next morning, but I did not see him for several weeks, and that statement is of questionable veracity.

Case 2.—Another example is that of a man of fifty-two, who for years had had vitiligo. His son was killed in an automobile accident, and soon after this he lost his hair permanently.

Case 3.—Another young man had alopecia areata, from which he had practically recovered. He was later in the Long Beach earthquake, and in a few days the alopecia returned, more extensive than ever.

Case 4.—Another man was thrown twenty feet by an automobile, and within a week developed lichen planus.

COMMENT

The susceptibility to unbalance of the autonomic nervous system seems in some ways to resemble that of insanity. Families or individuals have a tendency to autonomic unbalance, and this unbalance may come spontaneously or be induced by some upsetting condition. I have noticed that vitiligo is frequently met in relatives. Giljarowski[10] found seven cases of alopecia areata among 293 mental cases, and Jordan[11] found two cases of vitiligo among ninety-one cases of alopecia areata. In addition to family or individual tendency to insanity or emotional unbalance, emotional strains act at times to induce both of these conditions.

Complete loss of pigment in deeply pigmented races is not unknown.

REPORT OF CASES

Case 5.—A Los Angeles negro, who presents photographic proof of his normal color at the age of eighteen, is now entirely white except for an area of about one square inch. He seems to be normal, except that he had an injury to his forehead when he was a child.

Case 6.—Another Los Angeles resident of Mexican ancestry has lost all her pigment, but no cause can be found, as she seems to be normal in every way, and her disease seemed to act like an extensive case of vitiligo.

CAUSES OF ENDOCRINE UNBALANCE

In addition to emotional shock or nervous strain as a cause of endocrine unbalance, one might place under suspicion: (1) syphilis; (2) toxins; (3) chemical poisons.

These may work by causing disease of some sections of the autonomic system, or by causing a susceptibility to unbalance; and in the case of syphilis, by action on the gland tissue itself.

Syphilis is a possible cause of sympathetic unbalance, especially congenital syphilis. Congenital syphilis may cause a fibrosis of glands which produce a deficiency of secretion rather than direct action on the sympathetic system. I have seen recently a man of thirty-eight who had syphilis in 1922 and vitiligo in 1927; but, as a rule, I have not found syphilis and vitiligo to be definitely connected. Von Recklinghausen's disease also sometimes gives hyperpigmentation, and probably does this by direct destruction of nerve tissue.

Diseases such as diphtheria, typhoid and tuberculosis may cause adrenal deficiency by direct action, and also by action on the sympathetic system. I recently saw a man of forty-eight who had typhoid when he was nine years old. Soon after that he had vitiligo and lost all his hair, which returned, but white in color. After several years it turned black, but he still has marked vitiligo.

Arsenic is the chief chemical poison which causes hyperpigmentation, and it probably causes this by direct action on the melanoblasts and not by any action on the autonomic nervous system. In fact, most hyperpigmented areas are caused by direct action on melanoblasts. Chronic friction, light, and certain inflammatory conditions are examples of this. Still, arsenic is also a possible cause of autonomic unbalance. It is my opinion, unsupported by figures, that I have seen herpes zoster and lichen planus frequently during the administration of arsenic, and, in isolated instances, urticaria, angioneurotic edema, scleroderma, and Raynaud's disease, which are all diseases in which the autonomic nervous system has some part in the etiology.

SUMMARY

Arsenic is the chief cause of local hyperpigmentation, but sometimes unbalance of the autonomic nervous system results in abnormal pigmentation. The autonomic nervous system may be thrown out of balance by violent emotion, by syphilis, by toxins of certain diseases, and by chemical poisons.

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DISCUSSION

H. P. Jacobson, M. D. (2007 Wilshire Boulevard, Los Angeles).—I am in complete accord with the views so concisely expressed by Doctor Bancroft, though I am well aware of the fact that the available supportive evidence is meager indeed.

The thesis of a probable endocrine-sympathetic-pigmentary relationship is not a new concept. The idea has been expressed a good many times before by clinical and experimental investigators in the fields of biology, physiology, and biochemistry. Supporting this theory of relationship is the well-known experimental observation that early removal of the hypophysis in the frog tadpole results in the production of a species with a greatly disturbed pigmentary system—the so-called silvery or albino individual. Then, again, it has been demonstrated that post-pituitary extract is capable of effecting a darkening in color of these albino tadpoles. Furthermore, when immersed in post-pituitary lobe-extract solutions, the pigment cells of the frog's iris expand and become darker.

The importance of the adrenals and thyroid gland need hardly be stressed here, except to point out the view that the cortical portions of the adrenals are probably more intimately concerned with the metabolism of pigmentation than are the medullary parts. It might also be added that the sex glands, too, probably bear some sort of a relationship to the biochemistry of pigmentation, as may be judged from the well-known clinical dermatologic pictures of the various types of chloasma—dysmenorrheic, pregnancy, and climacteric. Whether in these clinical states (chloasmas) the pathologic physiology is limited to the sex glands alone, or there is, in addition, an adrenal cortical factor, is at present an open question. It seems reasonable to presume, however, in the light of the supposed relationship that the members of this chain of glands seem to bear to one another, that in the chloasmas, as in all other pigmentary clinical syndromes, the spirit of coöperation governs their collective functioning. Thus, for instance, in the chloasmas, the glands primarily concerned in the disturbance are probably the sex organs, while the adrenals, pituitary, etc., play a secondary rôle. On the other hand, the characteristic bronzing in Addison's disease is primarily a result of diseased adrenals, though the other members of the chain are probably also affected secondarily. Again, the not uncommonly observed pigmented warts and plaques on acromegalic patients are, *a priori*, clinical expression of pituitary disease, though the thyroid and adrenals probably play a minor, albeit a definite part in the syndrome. Similarly the various forms of abnormal pigmentary manifestations so frequently observed in thyroid disease are probably a result of disturbed functioning of this gland, plus a secondary involvement of some of the other glands.

There seems to be a fair agreement among students of endocrinology that, normally, there exists an harmonious interrelation in the working of these glands, and that an abnormal functioning of one ultimately affects the physiological balance of all the others in the group.

Regarding the influence of the autonomic systems on the endocrines, and on the processes of metabolic pigmentation, little need be added to what has already been said. You will recall, for instance, that stimulation of the splanchnic nerves by any one of a number of stimuli (mechanical, chemical, mental, or emotional) results in an increased discharge of adrenalin by the medullary portion of the adrenal on the stimulated side. Conversely, sectioning of the splanchnic nerve supply to a given adrenal results in a marked diminution or complete stoppage of adrenalin output on that side.

Animal biologists tell us that certain animals are able to change their color from light to dark, or vice versa, according to the color of their environmental background. They explain this phenomenal ability of the animals on the basis of sympathetic action, by assuming that the color of the background, acting upon the sympathetics via the eyes, causes the chromatophores to expand or contract, and the animal thereby changes its color. In support of this assumption may be cited the fact that blind frogs and fish have lost their power to change color.

From the clinical standpoint we all know, for instance, that fright, worry, shock, and other types of emotional upsets are not infrequently productive of such clinical conditions as premature graying of hair, vitiligo, etc.; and it need hardly be stressed that even more so than emotional upsets, biochemical toxins and poisons may, and not infrequently do, act directly and banefully upon the endocrine and autonomic systems and cause various types of pigmentary disturbances.

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Sophie A. Lurie, M. D. (1025 Story Building, Los Angeles).—Is it not reasonable to speculate on the idea that syphilis attacks any gland of the system, and thus impairs or destroys its function? Clinical observations have shown us that syphilis of the pancreas produces manifestations of diabetes, which responds favorably to anti-luetic treatments.

We have seen also a case of congenital syphilis with a low basal metabolic rate when the thyroid gland was affected by syphilis. This responded spectacularly to antisyphilitic treatment instead of specific endocrine therapy.

We presume that it may be worth while to think of the analogy of the above-mentioned facts, that, when the adrenals are attacked by the syphilitic process, vitiligo might be one of the clinical manifestations as a dysfunction of the regulation of pigment distribution. Considering the fact that our patients are asthenic to a greater or lesser degree and respond very impressively to bismuth salicylate intramuscular injections, we are inclined to believe that syphilis of the adrenals may be linked with the problem of vitiligo.

Five children of the Yale Street Health Center of Los Angeles are doing very well under bismuth salicylate intramuscular injections, combined with generalized quartz-light therapy; they are instructed to expose themselves to the sun.[1]

One of the patients (a thirteen-year-old girl) has had an area of vitiligo on the right cheek, in front of the ear, from birth, with a four-plus Wassermann. The rest of them have shown negative Wassermanns of the blood. The spinal test has never been taken.

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George V. Kulchar, M. D. (450 Sutter Street, San Francisco).—The studies of Bloch, Peck, and others, have given us an understanding of the cellular mechanism of pigmentation, but as yet there is no physiologic demonstration of the agency or agencies which control the processes of melanotic pigmentation in the skin. The causal relation between disturbances of pigmentation and the endocrine glands has been a frequent clinical observation, but we do not know if this action is caused by pathologic changes in the secretions of these glands or, in an indirect way, by the alteration of their vegetative nervous system control. There is a mass of evidence to indicate that the adrenals and the pituitary play an important part in the control of pigment metabolism. Recently Zondek has reported the presence of a melanophore-stimulating hormone in the pars intermedia of the pituitary. This hormone has been shown to be present, likewise, in the walls of the third ventricle, where the centers for the vegetative nervous system are located; attempts to demonstrate its presence in other parts of the body, except

[1] Elsewhere we have mentioned the principle of this treatment. (C. F. *Archives of Dermatology and Syphilology*, February, 1935. *Transactions of the Los Angeles Dermatological Society*, May 8, 1934.)

for small quantities in the blood stream, have to date been unsuccessful, a most interesting observation in the light of the vegetative theory of the nervous system control of the processes of pigmentation.

Addison's disease is, of course, the classic example of pigmentation following glandular insufficiency. However, in not all of the cases can actual histologic changes be detected in the adrenals. In a few cases the lesions are in other parts of the chromaffin system, such as the paraganglia and sympathetic ganglia, all derivatives of the sympathetic nervous system. Cases are reported following destructive lesions of these autonomic nervous-system structures, caused by carcinomatous invasion, tuberculosis, syphilis and bacterial infections and drugs, particularly the arsphenamins.

The supposition is that these patients have a congenital insufficiency of their chromaffin system which makes it more susceptible to injury. Whether this hypothesis is true or not, certain it is that interference with the secretory nervous supply of the suprarenal will result in melanotic pigmentation of the skin and mucous membranes.

Epinephrin, a product of the chromaffin tissues, seems to be in some integral way connected with the deposit of melanin in the skin. We know that epinephrin is closely related to tyrosin, a chromogenic substance, capable of producing pigments. The supposition is that, if the adrenal is functioning normally, the tyrosin is converted into epinephrin; but in case of hypofunction of the suprarenals, the tyrosin is unable to break down any further, and this may result in pigmentation.

Just a word as to the local processes of pigmentation. The hyperpigmentation, resulting from disturbances of the endocrine system, arising from lesions within the glands themselves, or, secondarily to interference with their autonomic nervous supply, appears to be merely a quantitative increase in the normal processes of pigmentation. The activity of the melanoblasts is greatly increased. Many more cells participate in the action, and the basal layer histologically appears a black band from which many dendrites ascend. However, the fundamental process of melanogenesis appears to be unchangeed.

RESULTS OF TREATMENT OF CONGENITAL LUETICS WITH BISMUTH ARSPHENAMINE SULFONATE (BISMARSEN) FOR FIVE YEARS*

By William Anthony Reilly, M.D.
San Francisco

Discussion *by Hartzell H. Ray, M.D., San Mateo; Merlin T.-R. Maynard, M.D., San Jose; Stanley O. Chambers, M.D., Los Angeles.*

BISMUTH arsphenamin sulfonate, hereafter referred to by the trade-name "Bismarsen," has distinct advantages for the treatment of children suffering from congenital lues. It is given intramuscularly with less effort for the physician, and discomfort for the patient, than is an intravenous antisyphilitic drug. The local and general reactions are much less frequent and severe. The toxicity is less than from such common antisyphilitics as sulpharsphenamin, neoarsphenamin or mercurials, and the therapeutic effectiveness is very high. This means that children will be more faithful to therapy and good results can be achieved. Stokes and Raiziss[1] (the latter the originator), and Chambers,[2] have reviewed the chemical constitution and pharmacological properties of the drug.

* From the Department of Pediatrics, University of California Medical School, San Francisco.

Read before the Dermatology and Syphilology Section of the California Medical Association at the sixty-fourth annual session, Yosemite National Park, May 13–16, 1935.

CLINICAL MATERIAL FOR THIS STUDY

The use of Bismarsen was initiated in our Pediatric Clinic in 1930, as part of a coöperative study with Chambers. Many acquired cases in adults have been treated with this drug, but few cases of congenital luetics have been reported. Chambers and Koetter[3] observed a group of 180 children for from one and a half to two years, who had received over 6,000 injections, which is the largest and most comprehensive study. Our group comprises 170 children ranging in age from birth to sixteen years, observed for five years and having had over 3,200 injections. Our technique differed from that of Chambers and Koetter, since we were able to treat these patients only once a week, while their patients were treated twice weekly.

RESULTS

Reactions.—Reactions occurred twenty-six times, or less than 0.8 per cent, and twenty-two, or 90 per cent of the reactions were immediate, eighteen being nitritoid only and four also having purpura. The purpuras occurred twice in two patients, and in the only examination done, there was not a reduced platelet count. The nitritoid reactions were not very severe and were readily controlled by epinephrin. The Zarisch-Herxheimer reaction occurred once, two years after the patient started treatment with this drug. No reactions from bismuth were encountered. The infrequency of reactions, and their relative mildness, are two of the advantages of the use of the drug.

Toxicity.—The 12 to 15 per cent of arsenic in the arsphenamin and the 25 per cent of bismuth in the compound, make it necessary to watch for skin, liver, kidney, blood and peripheral nerve effects. Such were extremely uncommon. Two patients had a very mild albuminuric nephritis, which rapidly cleared. The reactions noted above might be added as toxic manifestations, especially the purpuras in two patients. One patient was desensitized successfully without a recurrence of the purpura. There were no instances of arsenical anemia, dermatitis, neuritis, or enteritis. This also applies to the less frequently encountered bismuth poisoning. The rarity of toxicity is another advantage of this drug.

Effects on Lesions.—Congenital lues in this locality is usually latent and tertiary, due to the widespread treatment of pregnant mothers. The clinical signs and symptoms are few (about 16 per cent of patients), and the diagnosis depends mainly on the serology.

Infants with secondary manifestations of a very active nature are usually difficult to treat with any drug. Bismarsen seemed to be less toxic to them, if given in very cautious doses beginning with 10 milligrams, and apparently controlled the dissemination of the spirochete very well. Only two such cases were fatal in a group of ten. Table 1 shows the favorable reactions the drug has on the lesions at all ages. Skeletal lesions healed rapidly and well, except in fatal cases. This applies in a lesser degree to skin and mucosal lesions. One infant with snuffles was very slow to heal, and required about two months. Eye lesions, mainly

TABLE 1.—*Twenty-four Patients Having Lesions*

Systems	Skeleton	Eyes	Skin	General Condition, Anemia, Nutrition, etc.
Number	7	6	7	10
Per cent cured or helped	85	70	72	70

interstitial keratitis, required, as is usual, about two months of therapy for good results. Bismarsen is rather slow in this condition. In general, patients, especially infants, responded very well despite the low figure. The drug has often proved a life-saver to infants suffering from very active lues. Two infants died, and one had a slowly advancing malnutrition, when the family stopped treatment.

Bismarsen is quite as satisfactory in controlling clinical lesions as are other drugs. In believe it is superior to neoarsphenamin, which is often too toxic for infants with florid syphilitic lesions.

Effects on Blood Serology—There was adequate check-up of blood serology on sixty-one patients, and this, on the whole, showed a very good percentage of reversal, or marked improvement—85 per cent.

If the reversal to negative and the less positive reactions are grouped, the percentage of patients who were improved is 85 per cent. If only the negative serology is considered, the percentage is 61 per cent. As will be noted later, very few have had a relapse to positive serology. It must be recalled that many of the patients with positive serology will eventually become negative. This is even true in children who start therapy after the fifth or tenth year, and more true if therapy is started in early infancy. This experience is quite parallel with many other drugs used for congenital lues.

It is notable that nearly 100 per cent of the infants are blood curable with Bismarsen. They averaged two courses covering about one year of time.

Children between two and five years of age were also almost 100 per cent blood curable, and required about two courses. The proportion of blood reversiblity is around 50 per cent for children starting therapy between five and fourteen years of age. Here the latent tertiary condition of congenital lues resisted with Wassermann fastness, and often three to six courses of from one and a half to three years of persistent treatment were required. Regular therapy was more important than the number of injections, although, if it were practical, better results might have been achieved with treatments twice weekly rather than once a week.

Effects on Spinal Fluid Serology.—Thirteen patients, of a group of forty-three that had spinal fluid examination, showed evidence of central nervous system lues. Another group of fourteen, not so examined, had very suspicious evidence. This is a rather high incidence; at least 30 per cent of the children examined had nervous system involvement. Only three patients have been rechecked after therapy, and fluids were reversed to normal findings; one, an infant, after twelve treatments during two and a half months, has had no recurrence in four years; the second, a fourteen-year-old boy, after 114 treatments in three and a half years, and the third, a girl of seven years who had only one year of treatment. The other patients were either unable to continue treatment with this drug, for various reasons, or have not been rechecked by spinal puncture.

Direct appraisal of its effects on central nervous system lues cannot be given, but certain generalities seem to be definitely known. Bismarsen has caused reversal of blood serology in four other patients, where reëxamination of the spinal fluid could not be done. There was also very definite improvement in the personality and behavior problems, which are so characteristic of many congenital luetics, in two of our patients. We have seen the drug act as a life-saver in two infants with positive spinal fluid. Furthermore, nervous system

TABLE 2.—*Blood Wassermann After Therapy*

Number of Courses	0-1	1-2	2-3	3-4	4-5	5-6	6 Plus
Age Group 0 to 2 Years							
Number patients	1	7	2	.....	.....	1	.....
Per cent negative	100	87	100	.....	.....	100	.....
Per cent less positive	.....	13	.....	.....	.....	.....	.....
Per cent unchanged	.....	....	.....	.....	.....	.....	.....
2 to 5 Years							
Number patients	2	4	2	1	1	.....	.....
Per cent negative	100	100	100	.....	100	.....	.....
Per cent less positive	.....	.....	.....	.....	.....	.....	.....
Per cent unchanged	.....	.....	.....	100	.....	.....	.....
5 to 14 Years							
Number patients	2	23	7	1	1	1	3
Per cent negative	50	50	72	100	.....	100	33
Per cent less positive	....	29	14	.....	100	.....	33
Per cent unchanged	50	21	14	.....	.....	.....	33

symptoms have progressed in only five of the forty-three patients, and only one of the five had much therapy (twenty-nine injections in nine months). There is no instance in twenty-four cases, with known freedom of the nervous system before treatment, in which they developed positive changes.

On the whole, Bismarsen is very helpful, since it penetrates the nervous system better than the other arsphenamins including tryparsamid (Raiziss).

COMPARISON WITH OTHER DRUGS

For two years prior to starting Bismarsen in our Luetic Clinic, only 14 per cent of twenty-seven patients, who had received various drugs, had attained negative serology. This is in marked contrast to 61 per cent of sixty-one patients who have received the present drug since 1930. Part of this difference, however, may be attributed to a more efficient follow-up in vogue at present.

Jeans and Cooke,[4] who used mercuric chlorid and a little sulpharsphenamin for infants for six months' or more treatment, reported that 72 per cent were serologically negative for at least three years. Jeans and Cooke added bismuth intramuscularly for children over one year of age. They reported 12 per cent of cures of those under treatment more than six months and less than one year, and 44 per cent cures of those treated more than one year. Comparatively, Bismarsen figures are about 50 and 43 per cent, respectively, slightly superior.

Stokes,[5] while considering that arsphenamin brings about quicker transformations than neoarsphenamin, has stated that Bismarsen is equal to or better than arsphenamin with bismuth or mercury. He remarked recently that it "has appealed to us as a moderately effective but not particularly impressive agent for the treatment of active tardive prenatal syphilis. It reverses approximately half the apparently fixed positive serological cases, but in interstitial keratitis is too slow, and is comparatively ineffective in prenatal neurosyphilis." I would agree as to the eye condition and the neurosyphilis, but the results in this study of non-neurosyphilitics, largely (70 per cent), show that from 61 per cent to 85 per cent have had a serological blood cure. Chambers and Koetter have reported excellent results with Bismarsen. Sixty-five of one hundred patients had complete Wassermann reversals after three courses of treatment. Only 3 per cent of these patients had serological relapse twenty months after the last treatment; 2 per cent after sixteen months, and 2 per cent after twelve months. Chambers and Koetter attained complete serological reversal in Wassermann-fast cases in 51 per cent of these, and only 8 per cent of them showed ultimate relapse. If sustained, this is a truly remarkable record. Wright,[6] an authority and leading exponent of the use of bismuth, reported 74 per cent reversals of blood serology by the use of bismuth only, 56 per cent reversals by the use of neoarsphenamin or sulpharsphenamin with bismuth. These figures include 150 children enrolled during a ten-year period. Again Bismarsen is somewhat more effective.

RELAPSES

Clinical.—Relapses have been few in number, and are known to have occurred in about ten of 170 patients, mainly in infants with florid secondary lues, which are notoriously difficult to control or cure. Three of this group were neurosyphilitics approaching puberty, another trying problem. Only one case of keratitis relapsed.

Serological.—There was known recurrence in only eight of 170 patients. In one infant the blood remained negative during therapy from the age of seven months to three years, when it again became positive, despite continuous treatment. Two other infants relapsed six months after one course from negative to three plus, but they finally became negative.

Most of the sixty-one patients who had reliable follow-ups have had negative serology from one and a half to five years after the cessation of therapy. We have been unable to follow all of the 170 patients who started therapy. It is possible that even during faithful therapy more clinical and serological relapses would have occurred. The incidence is probably no greater, at the least, than occurs with the other arsenicals, or bismuth alone, or both. However, conversely, an even greater recurrence has probably happened in those patients who have ceased Bismarsen therapy and disappeared.

SUMMARY

1. Bismuth arsphenamin sulfonate (Bismarsen), for the treatment of lues in children, has the great advantage of ease of intramuscular administration. This insures a more constant and prolonged period of therapy, so necessary for congenital lues.

2. Reactions are less common than with the usual antisyphilitic drugs; these occurred in about 0.8 per cent of injections; the local reactions are very mild; the general reactions are more common, usually nitritoid and not often severe.

3. Toxicity is rare. Purpura was the common toxic manifestation.

4. Lesions, especially those in infants, heal promptly. Interstitial keratitis, however, is the slowest lesion to respond.

5. Over 3,200 injections have been given to 170 children during four and a half years.

6. Adequate check on sixty-one patients shows that 61 per cent have a negative blood serology, and 24 per cent show marked attenuation, a total of 85 per cent helped.

7. Patients with neurosyphilis were definitely improved, and further complications probably prevented.

8. Our experience, and that of others who have used various antisyphilitic drugs, indicate that bismarsen is superior for congenital luetics.

9. Clinical relapse occurred in less than 1 per cent of the patients and known serological recurrence in less than 0.5 per cent, although it is apparently too early for final figures.

711 Seventeenth Avenue.

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DISCUSSION

HARTZELL H. RAY, M. D. (23 Third Avenue, San Mateo).—Doctor Reilly is to be complimented for giving bismarsen a five-year trial before reporting on it. Antisyphilitic remedies need many years of study and wide use to determine their true value. In this study of the use of bismarsen in congenital lues its advantages appear to be ease of administration, low toxicity, equal or better than average serological reversals of Wassermann, and early clinical recovery from symptoms of acute lues. Because of the ease of administration and better attendance of the patient, a more complete course of therapy may be given. This may account in part for the more favorable results obtained. The low toxicity may possibly be due to the fact that this drug contains only a small amount of arsphenamin per dose. Bismarsen, similar to most antisyphilitic remedies used in congenital lues, seems to give the best serological results when used in children before the age of two years, and when given fairly regularly over a period of time. Bismarsen, in ages over two years, seems to give a little better than average serological result. Because of its evident advantages, bismarsen is a drug that should receive a more widespread clinical trial.

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MERLIN T.-R. MAYNARD, M. D. (Medico-Dental Building, San Jose).—Doctor Reilly has covered the use of bismarsen in the treatment of congenital luetics very completely. I feel that whatever comment I can make will be simply that of emphasis.

I would question, however, his statement that bismarsen is less toxic than neoarsphenamin. I believe that if equivalent therapeutic dosage be given, we will consistently find that arsphenamins containing sulphur in their compound are distinctly more likely to produce constitutional reactions and damage. Nitritoid reactions occur quite commonly, and purpuric reactions are also definitely more frequent.

Something should also be said for preliminary iodid therapy. I believe the intravenous administration of sodium iodid to be a very valuable preliminary to all arsenical therapy, particularly in those cases in which the liver is large and liver function is distinctly damaged. I further believe that the giving of liver extract is also worth while in connection with the bismarsen therapy.

The great group of luetic children are treated by the family physician, where the ease of administration of bismarsen and the good results in treatment outweigh the danger of reactions. I want to emphasize that the attention of the general practitioner must be directed toward these complications as much as toward its therapeutic benefits.

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STANLEY O. CHAMBERS, M. D. (1260 Roosevelt Building, Los Angeles).—Bismarsen is a drug proved of value in the treatment of syphilis, and particularly adapted to the infant and child. Its simplicity of administration and apparent therapeutic effectiveness emphasize that adaptability.

Doctor Reilly has treated and observed a very well-controlled group in the congenital class, and his results merit careful and thorough consideration. It is true that there were evidences noted in our original group of a tendency for the drug to act more slowly than other of the arsphenamin derivatives. This fact may, however, be an advantage rather than a disadvantage when we consider the desirability of slow healing where vital tissues are involved.

We already appreciate the need for utilizing this principle in hepatic syphilis. When we eliminate this questionable point from the list of therapeutic effects, bismarsen appears to equal if not exceed the value of other drugs commonly used in the treatment of the congenital syphilitic. Its almost negligible incidence of untoward reactions and its great simplicity of administration certainly should warrant its place in the therapeutic armamentaria if the record of effectiveness can be sustained.

THE LURE OF MEDICAL HISTORY†

DISEASES OF THE INDIANS OF LOWER CALIFORNIA IN THE EIGHTEENTH CENTURY*

By S. F. COOK, Ph.D.
Berkeley

Foreword.—A translation of a chapter from: Descripción breve de la California, su situación, extensión, costas, etc. Con otras noticias que pueden conducir para el conocimiento de ellas. El autor de esta descripción fué un Misionero Jesuita de la California. (Probably about 1770.)

Translator's Note.—There is no doubt that the following short treatise represents one of the earliest attempts by a contemporary observer to discuss, in a comprehensive fashion, the diseases to which the Pacific Coast Indians were subject after the advent of the white man. The author does not attempt to consider at length the native maladies and the native cures, but limits himself primarily to syphilis and the epidemic plagues which were observed in Lower California. Although he writes anonymously, the author states that he was a Jesuit missionary in this region for many years and, therefore, his statements may be considered as first-hand evidence. The original document, from which this excerpt is taken, is in the Biblioteca Capitular Columbina in Seville, Spain; and a transcript is in the Bancroft Library at the University of California, Berkeley.

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IT is an unquestionable fact that the climate of this section of California is well suited to foreigners, and much more so to the native Indians. These natives are, commonly, of a very ruddy complexion and of a hot-blooded nature. They have a cooling fruit, which helps to relieve this condition. To my sight, the cause of their robustness is the frugal way of living which they, of necessity, must endure. Although the races, fights, and other exertions in which they indulge occasionally give them injuries of the chest, it is also certain that, through them, they lay aside their

† A Twenty-Five Years Ago column, made up of excerpts from the official journal of the California Medical Association of twenty-five years ago, is printed in each issue of CALIFORNIA AND WESTERN MEDICINE. The column is one of the regular features of the Miscellany department, and its page number will be found on the front cover.

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ill-tempers. Their freedom from worry and care, their simple way of living, and their simple diet, all help to prolong their lives.

SYPHILIS †

Nevertheless, they have suffered from many serious epidemics of spotted fever, smallpox, and other fevers which have destroyed many people. However, the disease which has killed most of the Indians of the missions has been syphilis. It has been spreading so rapidly that, after having annihilated all the people of the South, it has penetrated to the North; and in the most prosperous missions, where formerly were to be found thousands of inhabitants, they are now found hardly numbering into the hundreds. Fatal misfortune! Some believe that this disease is of native origin, in that they have seen heathens (I have seen many) present that were infected with other sores and boils. I have noticed that these sores are not as bad as those which afflict the Christians. This leads me to believe that they might be of another kind, because the heathens never remain disabled for their tasks, and they are cured with the greatest ease and in a short space of time. The sores of the Christians are cured with the greatest difficulty, and the disease spreads with great rapidity among them, while the heathens hardly ever infect each other.

Others are of the opinion that the soldiers, who lead a very free life, have spread this dangerous disease. I withhold my judgment on this particular, for I have reasons for not agreeing with this opinion. Some say that it is a punishment of the Indians for having taken the life of Father Tamaral, missionary of San José del Cabo, and this opinion has spread greatly in California. I am neither agreeing nor disagreeing, but only expounding that which is clearly shown by legally filed documents and by truthful testimonies. Two insurrections have been verified as having taken place among the Indians called Pericos; one in 1734, and the other in 1740. In the first place, they killed their Father and founder, Nicholas Tamaral; and, secondly, the commanders and others of the ship from China.

MALARIA

By October of 1742 there fell on the Pericos an epidemic so unusual that each one fled from the rest. Five hundred persons died, and the disease lasted for a little less than two and a half years. From the Mission San José the disease spread to Santiago, and from here it passed to Todos Santos; from Todos Santos it took a startling leap and began in the northernmost mission, which is San Ignacio. From here it spread to Rosalia and Guadalupe. This pestilence was so widespread that no one escaped it. This plague or disease began with recurrent spells of four or six days [malaria], or with spotted fever; and with such vehemence that some died within two, and some within three hours. I might add that although all fell sick, only those who were accomplices in the insurrection died. Others found that the juice of the lemon or frequent bathing was beneficial; but to the insurrectionists such treatments were fatal.

By the year of 1735, when a ship arrived from China, the Indians were still in a state of insurrection. They pretended that the Father was in the mission, and they offered to conduct the members of the ship to the mission under the pretense that they were guides; and then killed all those who had chosen to accompany them. It has been impossible to determine the number killed, but it was noticed that the murderers and others of their rancherías were soon struck by scurvy, the same illness that afflicted those of the ship.

MEASLES

On the twenty-fifth of December, 1748, another epidemic of measles began, and 150 at the Cape [Cape San Lucas] alone died. By July of 1768 another very contagious disease of many sores and pimples spread so rapidly through the people that they nearly all died, and it was so violent that even the Father of the Mission San José, Juan Moral, lost his life. Only twelve Pericos survived, and these were infected with syphilitic sores. When an expedition from France and Spain arrived to observe the transit of Venus, they all fell sick; and one member of the Parisian Academy died. On different occasions the South has been populated with Indians from the North, but they have all perished. This last disease from which they have suffered has raised so much havoc among the missions that it has left them without Indians capable of doing the most necessary tasks that require any skill whatever. This is the true epoch of the birth of a new and unknown disease. The Indians have experienced their pestilences just as have other nations of the world. They have experienced epidemics of smallpox only on two occasions, but fevers four or five times. Not even the lack of care they have had, their meager diet, or the many absurdities which they practice has been the cause of these annihilations. I have made experiments and can secure immunity from them as has been done in the Mission of Guadalupe and San Vincente.

CHAMELEON TEA

For other syphilitic ulcers it has been shown by experiment that the application of the juice of the *cardón* (or cardencha), while extremely painful, is very beneficial. Chameleon water has the same effect as ointments, and I have tried it on two Indians and the result was satisfactory. The chameleon is put in a pot and three-quarts of water are added. The pot should be tightly covered to prevent evaporation, and the mixture should be boiled down over a slow fire until only one quart remains. This water is drunk before breakfast, and the patient should be well covered and carefully watched. This operation is repeated for three days, and having sapped the physical strength of the patient by salivation and perspiration, the sores are washed with sea water. A few have been cured in this manner.

† Subheadings are not in the original text.

OTHER REMEDIES

For other sores which are not as serious, I have seen the heathens crush the foliage of a plant resembling a mangle tree,[1] and this juice makes a more effective cure than the ointment of the isis[2] or amarillo.[3] It heals the sores, kills the worms, and restores the flesh. For this last operation the powders from an herb resembling the *manso*,[4] which grows on the edge of the swamps, are very effective. I have seen the deep wounds inflicted by bulls cured by the roasted roots of the *carrizo*,[5] and I have cured such wounds by the same method myself. The *lentejuela*,[6] which abounds on this frontier of San Miguel, is particularly effective against boils and ulcers. The plants *yerva des pasmo*,[7] *yerva del venado*,[8] *yerva del fabardillo*,[9] and *choya*[10] are very good for bladder stone. In short, if, from the beginning a diligent search for the medicinal powers of the many plants which grow in California had been made, this information could have been gathered into a rare and useful book on medicine. With the knowledge that I have of the language of the Californians, I have been able to make these findings for myself; and if the many tasks and pursuits which surround the daily life of a frontier missionary did not take up the major part of my day, I would be able to add to these findings; but let that suffice. Let each one form the opinions he pleases, the fact still remains that the actual disease has spread through all of the missions with the exception of those on the frontier.

It is certain that there are a few missions in which the converted Indians have had many singular ailments of the chest, and in others they are very robust. In a few missions the natives believe that to become baptized is to become afflicted with numerous ailments, because their neighbors, who are heathens, are healthy and hardy. Their condition can be ascribed to the way they live, which is altogether different from that of the Christians; and this fact should be borne in mind by the missionaries. It is very necessary to understand them, and they should not be removed too suddenly from their native haunts.

University of California Medical School.

1 The mangrove, *Rhizophora mangle.*

2 Probably refers to the holly, *Primus ilicifolia.*

3 This term was applied to numerous plants of different species.

4 The olive, probably *Ximenia americana.* The olive was used medicinally throughout tropical America.

5 A kind of coarse sand grass, *Phragmites communis.*

6 Literally lentil. More likely some kind of acacia, possibly *Acacia lentisafolia.*

7 Ribbon wood, *Adenostoma sparsifolium.*

8 A shrub, *Porophyllum gracile.*

9 I can find no trace of this plant in the modern literature.

10 A cactus, *Opuntia cholla.*

Every advance in our knowledge increases the potential capacity of man. But the mere increase of knowledge, and particularly the knowledge of preventive medicine or the ways and means of personal hygiene and well-being, can do nothing of itself to prevent disease and to safeguard health, unless it be understood, accepted and practiced.—Sir George Newman.

CLINICAL NOTES AND CASE REPORTS

EPITHELIOMA OF SCALP*

REPORT OF CASE

By George J. Heppner, M.D.
San Francisco

Mrs. M. F., age forty-eight, housewife—an average healthy, normal woman, a disciple of faith healers. In 1928, while dancing, she was accidentally bumped on the head by a friend's elbow, causing a hairpin to penetrate through the scalp, just above the left ear, and drawing blood. There was no particular discomfort attached to the injury; but during the course of the year a small tumor mass, pedunculated in character, started growing at the site of the original injury. A faith-healing practitioner was called in consultation, and despite his earnest endeavors, the tumor mass continued to grow for the next four years. She was first seen by a physician in 1932, at which time she had a pedunculated cauliflower-like mass just behind the left ear some eight centimeters square; there were many crypts in the mass; it exuded a foul-smelling purulo-sanguineous discharge, and it was necessary, at all times, to keep the tumor mass covered with cotton and dressing.

In an endeavor to correctly inform the patient as to the necessity of surgery, too much emphasis on prognosis was given by the doctor, and the patient decided to die, if necessary, with the tumor mass on, rather than to subject herself to surgery. On October 18, 1934, due to persistent efforts on the part of the patient's husband—partially on account of a continuous dribbling of purulo-sanguineous matter down her neck, and partially on account of a new-born faith in surgery—the patient consulted the writer, and surgery was agreed upon.

Examination at this time showed a large tumor mass just behind, and involving the left ear, some 8 by 10 centimeters in size, and 22 centimeters off the base of the scalp; the tumor appeared very similar to brain tissue but, of course, was entirely independent of the cranial contents, being connected to the overlying skin only. An x-ray revealed no bony involvement. The physical examination showed the patient to be in an advanced stage of carcinomatosis with cachexia. The heart had an occasional dropped beat. The lungs showed occasional diffuse coarse râles. The liver and spleen were both noticeably enlarged; and the urine showed many pus cells, but was otherwise negative. There was a moderate ankle edema; large external hemorrhoids, and a copious vaginal discharge.

With only the thought in mind of relieving the distressing situation on the head, and realizing that the patient was too far gone for cure, surgery was decided upon.

Procedure.—Under avertin and gas anesthesia, with the radio knife, the entire mass was excised down to the skull. Bleeding was stopped by electrocoagulation, ligation and suture; but few vessels were ligated in the entire area, the electrocoagulation taking care of most of the bleeding.

After the entire mass and area had been removed and cleaned up, the remaining tissues had a healthy appearance. In order to cover this vast denuded area, a plastic operation was performed, moving over a considerable amount of skin from the face, which was slipped back by a sliding graft; also the skin of the neck was undermined and slipped upward. The skin of the forward and upward part of the face was slipped backward; the skin of the back of the ear likewise was loosened and stretched backward so that the area

* The author wishes to express his appreciation for the kind coöperation of Dr. Ferd W. Callison of this city at the time of surgery; to Doctors Ingber and Rodenbaugh, for their coöperation with the x-ray therapy; and to the general and pathological staff of the Mt. Zion Hospital, at which organization the work was done.

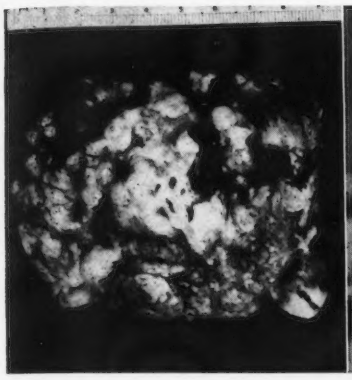

Fig. 1.—Pathological specimen hardened in formalin 7.5 x 9.0 cm.

Fig. 2.—Three days after surgery, showing location of tumor, and result of sliding skin graft. The area between the suture lines, subsequently sloughed away.

Fig. 3.—February 12, 1935, sixteen weeks after surgery — shows practically complete healing. Dark areas are scarlet red ointment.

was covered with the extension, with an exception of an area of 4.4 by 6.6 centimeters in the center of the same. This area was then covered with vaselin gauze; dressings were applied; a rubber dam was inserted through a stab puncture at the lower edge of the wound in the neck; a sponge was placed over the lower face and neck in the area where the largest graft was performed, and the entire area was tightly bandaged.

Pathological report of removed tumor mass: Basal cell epithelioma.

Progress notes: Uneventful convalescence in hospital for ten days. Use of hot oil (olive) compresses instituted, changed every three hours. At discharge, it became evident that graft transplants were due to fail, as slough and gangrene were already developing.

November 15, 1934: At point where drain tube was inserted, there has developed a definite epithelioma of almond-sized proportions. X-ray therapy instituted.

December 6, 1934: Head looks remarkable; drainage has ceased, and the new epithelioma has flattened down to level of skin.

December 18, 1934: For the past two weeks has been on urotropin, with some improvement. Has a good deal of general pain, especially right arm and leg (always lies on these); first attempt to lie on her back, successful. Abdomen swollen considerably, but no fluid wave is present. Quite unable to palpate through the abdomen, but there is definite epigastric fullness, which probably is the liver enlarged. Prognosis, poor.

December 25, 1934: Continues poorly. The liver occupies the upper half of the abdomen. Edema of ankles and thighs is intense. The head meanwhile is healing wonderfully well.

January 2, 1935: No changes generally. Teeth have lost good deal of calcium, and have become sharp. Dentist to file teeth smooth.

January 16, 1935: Been running septic temperature for a week; coughing more. No change in general condition.

January 30, 1935: Temperature normal all week. Some relief at night with use of codein tablets. Still using urotropin; also bromids for nervousness.

February 5, 1935: Head practically recovered. Last x-ray treatment today.

February 12, 1935: Edema of both legs still intense; there is also some edema of the back; and a good deal of swelling in the right arm. Salyrgan 10 per cent, one-half cubic centimeter given intravenously.

March 15, 1935: Beginning signs of uremia, with anuria; muscular twitching, and lapse of memory.

March 17, 1935: Expired of uremic poisoning.

X-ray treatments were given this patient through the office of Doctors Ingber and Rodenbaugh of this city. The dosage and frequency of treatments was as follows: 3250 r-units in divided doses in eight weeks, using two ports 40 centimeters distance, 140 k. v., and copper filter.

490 Post Street.

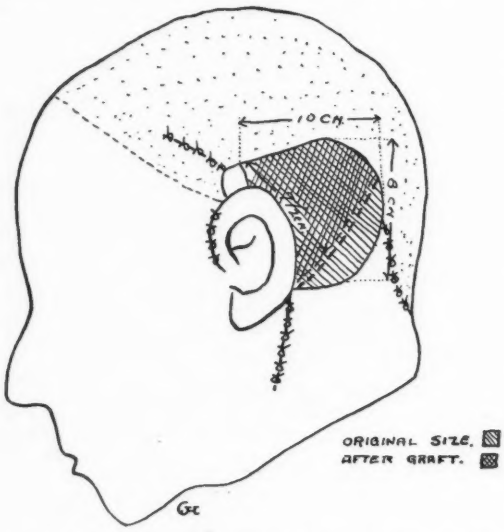

Fig. 4—M. F.—48. Epithelioma scalp. Location and size of tumor before surgery and after sliding graft.

BENIGN HYPERTROPHIC PROSTATE

REPORT OF CASE OF LONG STANDING PERSISTENT BLEEDING FOLLOWING TRANSURETHRAL RESECTION

By Charles C. Falk, Jr., M.D.
Eureka

A NUMBER of cases of moderate to massive hemorrhage immediately following transurethral resection are reported from time to time in the literature. The following case differs from these in that no unusual bleeding occurred immediately after resection, but that moderate to marked hematuria persisted for four months following resection, despite all efforts to stop the prostatic bleeding.

REPORT OF CASE

G. M., aged 58 years, married, white male, father of three children. Occupation, sheep rancher. Complaint: Frequency and difficulty of urination of two years' standing. General examination revealed a well-developed, well-preserved man, whose general appearance was the picture of health. Weight, 162 pounds. Height, 6 feet. There were no pathologic physical signs in any of the systems, with the exception of the lower urinary tract. Rectal touch indicated a prostate approximately four to five times normal size, symmetrical, moderately tender, and movable. On catheterizing the bladder after voiding, 75 cubic centimeters of residual urine was present. Urinalysis was as follows: Color, amber clear; no threads; reaction, faintly acid; specific gravity, 1012; albumin, negative; sugar, negative; microscopical, three to four pus cells per high dry field; no red cells; no casts. A cystourethroscope was passed in the office and the intravesicular hypertrophy was observed. Considerable median lobe hypertrophy was noted, together with moderate lateral lobe enlargement. A diagnosis of benign hypertrophy was made and the case was considered a suitable one for transurethral resection. The patient was taken to the hospital and a vasectomy was done, following which the bladder was drained by way of the urethra by intermittent catheterization for a period of three days. A phenol red test at the time showed kidney function to be within normal limits. Under spinal anesthesia, with a McCarthy resectoscope and a Rose tube gap-cutting unit, six sections were removed from the median lobe, and three sections each from the two lateral lobes. All bleeding points were satisfactorily controlled by means of the coagulation current. A No. 30 French retention catheter was left in the bladder for two days. After this time the patient was allowed to void, and was dismissed from the hospital on the eighth postoperative day with no complaints and little or no residual urine. The pathologist's report on the sections removed were adenomatous hyperplasia of the prostate, with no evidence of malignancy.

The patient was seen biweekly, sometimes weekly, at the office for the next three and a half months. Three weeks postoperatively the patient stated that on two occasions, on arising in the morning, his urine appeared wine-colored or bloody, and at this time he brought a urine sample, which was grossly bloody. Urinalysis of a specimen voided at the office at this time was as follows: Color, smoky, with moderate amount of flakes; reaction, alkaline; specific gravity, 1015; albumin, one plus; microscopical, red blood cells full field; ten to fifteen pus cells per field. The bleeding was thought to be due to secondary infection, so the patient was irrigated twice weekly with 1:7000 potassium permanganate solution. He seemed to improve for a time, but after one month of such treatment his urine again became grossly bloody, so it was decided that some unusual condition existed at the site of resection. A McCarthy panendoscope was passed in the office, and the resected area was clearly observed. Several arteriolar bleeding points were noted, and these were subsequently fulgurated. Following this procedure the hematuria cleared for about ten days, only to recur the same as previously. During the next six weeks these bleeding areas were fulgurated on three different occasions, all without avail. It was then thought that some systemic condition was present. A Wassermann was taken, and returned negative. A platelet count showed the platelets to be normal in size and number. Clotting time was normal. A red blood count and hemaglobin estimation were as follows: hemaglobin, 70 per cent (Dare); red cells, 3,470,000. It was now clear that some other form of radical treatment was indicated, due to the patient's general condition. A prostatectomy was decided upon. The suprapubic route was selected, since the resected area could be better examined in this manner. The patient was taken to the hospital, where he was given 500 cubic centimeters of whole blood. The following day, under spinal anesthesia, a suprapubic prostatectomy was performed. The prostate was enucleated without much difficulty, and the hemorrhage at the time was not considered excessive. Hemostasis was accomplished by means of a medium-sized Pilcher bag. On examination of the specimen, the "trough," which had previously been made with the resectoscope, was large enough to admit two fingers. In other words, there was no question that the obstruction had been absolutely removed. Healing at the site of resection was not complete and areas of punctate hemorrhage were discernible. The pathologist's report on the specimen was as before, namely, adenomatous hyperplasia.

The patient's convalescence was uneventful and he was discharged from the hospital on the fourteenth postoperative day with a rapidly closing suprapubic bladder fistula which closed entirely in twenty-two days from the date of operation. He was seen at the office four weeks postoperatively, at which time his urine was clear and showed five to six pus cells per high dry field and no red cells. He has been seen periodically for the past eighteen months and he had no complaints, and has gained several pounds in body weight.

COMMENT

1. This is a case in which a resection was done with a good anatomical, but a poor physiologic result.

2. This patient's bleeding, following resection, could be ascribed to no particular cause. The fact remains, however, that the patient was cured by prostatectomy.

3. The writer has reached no conclusion as to how to foresee or avoid the complication which arose in this case. He has seen too many good results following prostatic resection with the high frequency current, to conclude that the operation is an unsound surgical procedure.

507 F Street.

Foreign Protein in Treatment of Gonococcic Ophthalmia.—Hamilton treated two patients presenting adult gonococcic ophthalmia with injections of cow's milk boiled for four minutes and given intramuscularly into the buttocks on alternate days. Commencing with 10 cubic centimeters, he increased the dose rapidly to 25 cubic centimeters. Of numerous foreign proteins and serums, milk produces the best uniform rise in body temperature. The one risk of milk injections seems to be anaphylaxis. At the first indication of distress, 10 minims (0.6 cc.) of epinephrin should be given hypodermically. Patients in whom milk injections are definitely contraindicated are those who are weak and debilitated, especially marasmatic children, tuberculous patients, persons with kidney disease and women in the last months of pregnancy. The author's patients responded well to treatment. They show that high pyrexia is a definite aid in the treatment of adult gonococcic ophthalmia. The pyrexia must be continuous and maintained until all discharge ceases. If the patient becomes immune to one foreign protein, another must be substituted. The use of a 2 per cent silver nitrate solution, however useful in other forms of ophthalmia, is strongly contraindicated in the treatment of gonorrheal ophthalmia even in the later stages. In all cases of gonorrheal ophthalmia with corneal ulceration, the whole cornea should be covered with a conjunctival flap at once. A purse-string suture carefully inserted is the only sure method of keeping the conjunctival flap in place for the desired period, namely, ten days or longer. The author concludes that massive doses of foreign protein, given intramuscularly or intravenously on alternate days so that the body temperature is left swinging at a high level, are specific for gonococcic conjunctivitis in adults.—*Medical Journal of Australia.*

BEDSIDE MEDICINE FOR BEDSIDE DOCTORS

An Open Forum for brief discussions of the workaday problems of the bedside doctor. Suggestions of subjects for discussions invited.

CARCINOMA OF THE CERVIX OF THE UTERUS

ETIOLOGY OF CANCER OF THE CERVIX

ORVILLE N. MELAND, M. D. (1407 South Hope Street, Los Angeles).—Ordinarily, when we think of cancer of the cervix, we immediately attribute this condition to neglected lacerations following childbirth or the acrid discharges secondary to low-grade infections. There is much to commend this viewpoint, as has been brought out by Bailey and Schiller, but many women who have lacerated cervices and chronic inflammations never develop cancer. However, in a very fine piece of work Bailey[1] shows that in the chronic inflammatory lesions of the cervix, and in the so-called erosions, there is a dual process going on, a chronic destructive inflammation and an abortive healing attempt with epitheliation. In some patients, when the reparative process is interfered with, a condition is finally arrived at where the epithelial cell is no longer a healthy organism with function, but one in which the growth element has become such a dominant factor that a new growth results. The balance between growth and repair has become lost and a cancer is born. Such an evolutional process has been traced in serial sections of cervical erosions where he says, "The ultimate sequel to erosion is malignancy." Bell, on the other hand, makes the pertinent remark: "Erosions and lacerations of the cervix furnish a theoretical point of origin for cancer, but the earliest cancers we have studied did not arise from these lesions. We have no certain knowledge of the inciting causes of cancer of the cervix."

However, there are other factors which we must consider. Thus Martzloff[2] maintains that the majority of instances of cervical cancer are associated with one or more pregnancies. What influence the pregnancy actually has is hard to say, but most observers think that the healed laceration following childbirth, miscarriage or operative manipulation may supply the primordium for cancer of the cervix. Sir George Buchanan, a member of the Cancer Commission of the League of Nations, says: "Although cancer of the cervix is mainly a disease of women who have borne children, the work of the Commission confirmed the conclusion of Peller and Deelman that it is *the fact of a pregnancy,* and not the number of deliveries, which is the predisposing factor in the production of cancer of the uterus."

The influence of pregnancy in this condition is strengthened by some observations made by Hofbauer,[3] who has found hyperplastic changes in the cervical epithelium in a notable proportion of pregnant uteri. Furthermore, there are ingrowths of the epithelium with hyperchromatism of the cells. He says: "The generation during pregnancy of multilayered cells, by proliferating cervical epithelium, might be properly designated as epithelial hyperplasia, exhibiting certain features of 'metaplasia.'" This hyperplasia persists as long as forty days postpartum, possibly longer. The cells in this proliferative process resemble morphologically the epithelial neoplasia of Cheatle, as seen in chronic cystic mastitis. The same process has been seen in the gall-bladder by King, and in polyps of the colon by Schmieden and Ewing. To quote Hofbauer again: "Reasoning by anology, however, with similar phenomena in the gall-bladder, the breast and the alimentary tract on record, I venture to suggest that the production during pregnancy of solid tongues of proliferating epithelial cells in discrete places of the cervical mucosa, whatever their fate, may represent an important link in the chain of causative factors for the later development of malignancy; leaving unanswered the question of the interrelation of such epithelial variations and sequential chronic inflammatory conditions."

How are we to explain the presence of cancer of the cervix in the virgin? This group represents 5 per cent of those seen. Here we have no pregnancy, nor any laceration incident to manipulation. Are we to attribute it to the "Congenital Type of Erosion" of Reel? Irritation alone is not the cause of cancer. How many women with complete or partial uterine prolapse develop cervical cancer? If the cervix is irritated it should be under these conditions. Turning to the realm of speculative possibilities, the virgin who develops cancer must belong to a susceptible class. She has inherited a definite tendency toward that disease, and when an irritant is present, whether it be a "congenital erosion" or a hormonal derangement, neoplasia takes place.

Welsh,[4] in speaking of heredity, says: "In regard to the direct influence of heredity on the development of cancer, there is evidence that mice and men are linked in a fraternity. Both mice and men may show strains that are relatively susceptible, and strains that are relatively immune to cancer. Fortunate indeed are they who belong to the latter class. And to those who belong to the former class, that is, to those who have a family history of cancer, I would say that fore-

1 Bailey, K. V.: An Inquiry into the Basic Cause and Nature of Cervical Cancer, S., G. & O., 50:513, 1930.

2 Martzloff, K. H.: Lewis' Practice of Surgery, 10:176.

3 Hofbauer, J.: Epithelial Proliferation in the Cervix Uteri During Pregnancy, and Its Clinical Implications, Am. J. Obst. & Gynec., 25:779 (June), 1933.

4 Welsh, D. A.: Chapters in the Life History of Cancer, Med. J. Australia, p. 540 (April), 1930.

warned is forearmed. It is one of the prerogatives of intellect to be able to turn what at first appears to be a menace into a weapon of defense against that menace. If we accept the fact that heredity plays a part in the genesis of most cancers, then we should be in a better position to prevent death from cancer, because our attention would be focused upon their early and curable stages when an hereditary predisposition is known to be present, and further, we should concentrate upon prevention in such cases by removing all possible existing causes."

To summarize then, there is no uniformity of opinion as to the exact etiological factors in carcinoma of the cervix. Neglected lacerations, chronic inflammatory processes termed "erosions," and pregnancies play significant parts, but all may be influenced in some subtle way by that variable factor which we term "heredity."

* * *

SYMPTOMATOLOGY AND DIAGNOSIS OF CERVIX UTERI

GEORGE S. SHARP, M. D. (605 Professional Building, Pasadena).—The diagnosis of early cancer of the cervix is made most frequently during a routine complete physical examination for complaints that are not always related to uterine dysfunction. The earliest diagnoses are not accidental, but these symptomless growths may be found during thorough routine or periodic health examinations. For lack of definite initial symptomatology early cancer diagnosis may at first glance be credited to lucky stumbling, but the lucky clinician stumbles on forethought.

It is strange that a disease which was well known to the ancients should be so insidious in its etiology that we still are entirely ignorant as to its mode of onset in early symptomatology and diagnosis. Early internal cancers are only recognized after the exhaustion of all our inherent and applied art, while external cancers are discovered for the most part by the patient and confirmed by the physician. Our duty to the patient seeking medical attention should be a complete physical examination, regardless of apparent complaints.

The symptomatology of cancer of the cervix may be found in all textbooks, but the early cases do not have symptoms referable to the cervix. The normal functions of the uterus are not interrupted. The early growth many times in the form of a nodule is symptomless. A watery discharge or leukorrhea is not typical, but should always be thoroughly investigated. Intermenstral spotting, bleeding at intercourse or sudden hemorrhage are in most instances due to a growth which has ulcerated. Bleeding means the cancer is in direct contact with the blood stream and lymphatics; the possibility of metastases is great and is assured in 70 per cent of patients. Cervical growths may, therefore, be discovered before irregular bleeding, if suspected and examined.

The complaint common to all patients with an early growth is easy fatigue, poor appetite and possibly a little loss of weight. Our duty to the patient is neglected if these general symptoms are not followed up by a complete physical examination. More commonly these general complaints are tolerated by the patient for several months until local symptoms present.

Cancer rarely begins as cancer, but it is usually preceded by a persistent benign condition or chronic irritation. Recognition of these precancerous lesions such as leukoplakia, chronic endocervicitis and lacerations are of the utmost value to the patient, and proper treatment at that time will save the patient a probable malignant growth later. For example, a thorough cauterization for chronic cervicitis is a fair assurance of risk from subsequent malignancy in that area. Likewise cervical polyps should be removed because of their irritation to the mucous membrane in the canal.

The gross appearance of early cancer of the cervix is not typical. In fact, it is difficult to distinguish chronic cystic or interstitial cervicitis with erosion from early infiltrating epidermoid cancer with ulceration. Erosions are more frequently encountered in younger women from irritating discharges. In women over forty, erosions are less frequent, and when observed they should be regarded seriously, for many are actually early cancer. In this older group cystic formation and an increase in connective tissue production are observed more often than erosions. Moreover, mucus forms a large part of the discharge from these benign lesions, and this mucoid discharge is rarely present with cancer.

The appearance of an erosion should immediately arouse suspicion and be regarded as malignant until proven otherwise. If the area is touched with a swab, or slight bleeding is observed during the examination, this is still further evidence for definite pathological confirmation. The Schiller Test may be tried for further confirmatory evidence of biopsy. Lugol's solution is applied to the cervix and the normal squamous epithelium absorbs the iodin uniformly, while the ulcerated area remains unchanged. The test is not specific for new growth, and in the case of eversion with columnar epithelium presenting, the stain is not absorbed by this type of epithelium in the canal. The test is of no value for adenocarcinoma, although this type of growth is relatively rare, occurring only in 2 per cent of cervical growths. In other words, this test is not conclusive and is not dependable for a final diagnosis.

Little aid is obtained from palpation or bimanual examination in the early cancer. The typical induration of infiltrating growth may be readily found later during the progress of the disease, and the degree of extension into the broad ligaments may be determined. This evidence is necessary to clarify the clinical group; but the early diagnosis should be made before a degree of fixation is present.

The typical, or more commonly observed cancer of the cervix, is larger, nodular and more irregular than normal. There is usually an asymmetry with the location of the external os. This irregularity is due to tumor growth with invasion of surrounding normal tissues, and to a lesser extent the connective tissue and inflammatory

reaction around the growth. Ulceration, if present, is usually near the external os, and in the early case may even be demonstrated in an old laceration. Occasionally the growth may present in the cervical canal, and this demonstration may be helped by an applicator to incite bleeding, or to outline an irregularity of the wall. Rarely cancer may develop on the outer or lateral surface of the cervix near one of the fornices. Also more commonly than otherwise, the cervix is drawn slightly to one side, which suggests a degree of metastasis.

Early clinical diagnosis of cancer is largely a speculative one, but all important in inciting the physician to perform a biopsy. Microscopic study is the only basis for our final decision, and it should correspond with the clinical impression. In other words a negative pathological report of malignancy may mean that the biopsy specimen was taken from the inflammatory, reactionary zone around the growth, and the true structure missed; or the specimen may be taken from the top of a papillary type of growth, and a report of papilloma given when the infiltrating basal portion was missed. Even in the actual growth itself, the microscopic finding may vary as to the degree of malignancy.

The site and method of biopsy is obvious for the ulcerated growth. Any type of biopsy forceps is adequate and the specimen may be taken from the denuded area without anesthesia. The suspicious erosion requires a forceps with a cutting tip or, even better, a triangular wedge of tissue removed with a bipolar cutting current. The nonulcerated nodule also should be treated in a similar manner. This procedure is best performed in the hospital where an immediate frozen section may be done. If malignant, radium may be applied immediately without loss of valuable time.

The dangers of biopsy are no longer as apparent as they were once considered by many. The possibility of growth stimulation, dissemination of disease or infection are not found to be risks, and the data obtained is invaluable.

In conclusion, we are confronted with a disease without early local symptomatology, and our only weapons are: (1) Thorough, complete physical examinations on all patients; (2) yearly periodic follow-up examinations; (3) microscopic study of all suspicious erosions and interstitial cervical growths, and (4) adequate treatment of precancerous lesions before malignant degeneration.

* * *

IRRADIATION IN THE TREATMENT OF CANCER OF THE CERVIX UTERI

ROBERT S. STONE, M. D. (University of California Hospital, San Francisco).—Cancer of the uterine cervix is such a common disease that almost every general practitioner is sure to have many cases in the course of his practice. The diagnosis of the condition has already been considered in this symposium. Once the diagnosis has been established, the physician in charge must advise the method of treatment. The skill and equipment necessary for proper therapy have become so exacting and elaborate that it usually must be carried out by specialists.

Since the discovery of the roentgen rays and radium, it has been found that cancer of the cervix is sufficiently sensitive to irradiation to make this method the treatment of choice. In a few carefully selected cases very radical surgery offers the best chance of a permanent cure, if performed by a skillful gynecologist. For the great majority of cases, however, the only treatment offering good results is irradiation.

The type of irradiation to be used is the next problem. It has been said very frequently that the cervix offers an ideal situation for the use of radium, because it is so accessible. This statement reveals a lack of knowledge, both of the physics of radiation and of the extent of the growth in most cases. The strength of gamma rays from radium decreases very rapidly as the distance from the source increases. Thus, if radium is placed in the uterine cavity and the cervical canal, it can deliver a dose sufficient to destroy cancer cells on and near the surface. If, however, a similar dose is to be delivered to cells that have spread to the adjoining tissues, there will be destruction of normal, as well as pathological cells close to the source of radiation. The deep effect of the radium can be increased by using heavy filtration, and by surrounding the applicator with rubber or other substances which increase the distance between the source of radiation and the first layers of tissue. The size of the canal, however, precludes the use of any great distance.

The effect on the cervix can also be increased by cross-firing with radium placed in the vaginal fornices. The effect of this cross-firing of gamma rays can be obtained only in the cervix itself, since the radium cannot be placed out in the broad ligament.

Fortunately, a cross-firing effect in the adjacent tissues can be attained by the external application of x-rays. The intensity of the radiation reaching the tissues diminishes from the surface downward. Hence, by a judicious combination of x-rays from the outside and radium from the inside, a fairly uniform radiation of the entire pelvis can be attained.

In using radium or radon, many factors have to be considered. First, let us think of the filters to be used. Filters are those substances which are placed between the source of the radiation and the tissue to be irradiated. They are used to stop the rays that penetrate poorly. The gamma rays are the only ones desired, and even the long gamma rays are not useful. The shorter the rays are, the more deeply they penetrate. Heavy metals, such as lead, platinum, or gold, are the best because a thinner layer cuts out the rays that are not wanted. Different radium therapists use different metals of varying thickness. It is not possible, therefore, to state any ideal dogmatically. As the gamma rays go through the metal, they create secondary radiations which have long wavelengths and, therefore, no penetrating power.

These must be stopped by a lighter metal such as aluminum, or by rubber.

The second factor to be considered is the fact that the greater the distance between the primary source of the radiation and the tissue, the greater is the depth of effective penetration of the rays. Hence, wherever possible, some light material such as cork should be used to separate the radium from the surface.

The third factor is the distribution of the radium over the surface. It is this element of the problem, as much as any other, that makes every case different from every other. To achieve the best result, the radium should be well distributed over the surface. If the growth is large and the cervical canal patent, the radium can be widely distributed, and more will be required to cover the whole growth. Hence the distribution of the dosage between the body of the uterus, the cervical canal, and the vaginal surfaces is very important.

In stating the dosage of radium, it is far from sufficient to say that a given number of milligram or millicurrie hours has been or is to be used. The intensity of the radiation reaching each part of the tumor is the important factor. This is best stated by giving the total strength of the source of radiation, plus the filter, plus the distance, plus the distribution.

An additional factor of great importance is the rate of irradiation. The radiation must act over a certain period of time. It has been found that a massive dose completed in a short time is not so effective as the same total dosage given over a long period. The optimum distribution in time is not yet known. Some radiologists give three treatments of some hours each, at weekly intervals; others give the dosage by continuous application for a week or more; there are, in addition, many intermediate techniques.

Surgeons discovered, many years ago, that it was useless to remove cancer by a narrow resection of the original growth. A wide excision, including the usual channels of spread of the growth, is needed. Radium applied to the cervix is equivalent to a local excision. X-rays of the most penetrating type available must be used, in addition, to cover the usual channels of spread—the parametrium and the lymphatics of the pelvis. The penetrating power of x-rays is determined by the voltage of the electric current used to produce them. If the voltage is below 150 kilovolts, the x-rays will have such a low penetrating power that the radiation reaching the depth of the pelvis will be useless. Two hundred kilovolt x-rays, if used properly, can radiate the pelvis fairly effectively. On theoretical grounds, higher voltages should give more thorough irradiation. For this reason the experiments now being tried with voltages up to 900 kilovolts are being watched with great interest.

The intensity of the x-rays decreases rapidly as greater depths are reached, and to increase the depth dosage, cross-firing is used. X-rays are directed from the front, from the back and from both sides. Some roentgenologists use two portals of entry from the front and two from the back. The number of portals are varied according to the size of the patients' pelves.

As with radium, the filtration plays an important part in cutting out those rays of low penetrating power which will affect the skin, but not the deeper tissues. Copper, zinc and tin of varying thicknesses are used, with aluminum to cut out the secondary rays. With the higher voltages, lead is being used as a filter. Distance is also of importance in x-ray therapy, and no distance less than 50 centimeters should be used.

The factor of time is also of great significance. In the early days of x-ray therapy, massive doses were given in a short time. This method was found to have a profound influence on the patient, but comparatively little on the tumor. The tendency at present is to prolong the treatment by fractionating it, giving a little every day. Initially the prolongation of treatments arose from an attempt to radiate each cell as it came to its mitotic state, at which time it is most sensitive. Another reason of equal importance lies in the fact that the normal tissues recover from the effect of radiation more rapidly than the tumor cells. Hence, a larger dose can be delivered to the tumor with less damage to the normal tissues by spacing the dosage. The ideal duration of the course of irradiation has not yet been found, but it is generally accepted that the time for a course of therapy should not be less than two weeks. Many roentgenologists prolong the treatments for three or four weeks, and some continue them for two months or more. As a rule, the treatments are given daily.

The limiting factor in applying x-ray is the ability of the skin, and of the mucous membrane of the bladder and intestines, to withstand the dosage. With the prolonged (protracted) fractionated method, the skin can be reddened, browned or even blistered, and yet return to its normal state. With such a dose the mucous membranes become so inflamed as to produce cystitis and colitis. These changes cause very disagreeable symptoms which can be controlled only partially by medication.

A further problem in connection with radiation is the order in which the treatments should be given. The x-ray therapy should block the lymphatic channels and shrink the tumor. Hence, it is easier and safer to apply the radium after the x-ray treatments have been completed.

While the radiation must be given by specially trained physicians, the general practitioner often has to observe the patient during the course of treatments and should know what to expect. X-ray treatments to the pelvis usually produce the so-called x-ray sickness. The mildest symptom is a loss of appetite. The next is nausea, which may progress to vomiting. The patient generally feels more or less fatigued and somewhat melancholy. There is no known specific treatment for these symptoms. The patient must be encouraged to eat such foods as appeal to her, to keep up her strength.

Between the second and third weeks of treatment, the patient usually complains of diarrhea and often of pain on urination. These symptoms usually last about one week, and can be controlled partially by tincture of opium or paregoric.

From three to four weeks after starting treatments, the skin over the treated areas becomes sore. It should become red or reddish-brown, and any hair in the area affected by treatment should fall out. There may be some blistering of the skin. It is very important that no irritating medication or hot applications should be used on the areas of treatment. The roentgenologist usually prescribes some soothing powder, such as zinc sterate. The serious reaction lasts about a week, but a tanning may persist for some months.

The treatments should not be interrupted. A course of treatments is planned, with the definite purpose in view of getting a certain total dose given in a given period of time, by applying definite fractions of the total each day. Any interruption changes the whole course. It is better to hospitalize the patient, if necessary, to prevent such interruption.

It must always be borne in mind that it is the first course of treatments that cures or fails to cure the patient. Subsequent treatments are palliative. The tumor never reacts as favorably as it does during the first course. The first treatments must be as radical as the most radical surgery, and the patient needs to be encouraged frequently. It is altogether too common a practice for referring physicians to discontinue treatments temporarily without consulting the radiation therapist, and thereby jeopardize the patient's chances of a cure.

From the foregoing discussion it is obvious that the application of radium and x-ray involves much more than the giving of so many milligram hours of radium and so many units of x-ray. Anyone who is to apply these penetrating agents must have special training in the physics and biophysics involved, and must have a keen clinical training in the reaction of tumors. X-rays and radium must be regarded as physical agents more penetrating than the scalpel.

* * *

SURGICAL TREATMENT OF CARCINOMA OF THE UTERINE CERVIX

VERNE C. HUNT, M. D. (555 Roosevelt Building, Los Angeles).—Even though the diagnosis of carcinoma of the uterine cervix has been discussed previously, it is essential in the consideration of therapeutic measures that one should state his ideas regarding diagnostic methods, their reliability, and their usefulness in finally determining the type of treatment suitable in any particular case.

At the outset, it may be stated that in extensive malignant lesions of the cervix, the diagnosis is readily suggested by palpation and upon inspection; the biopsy is usually of value as corroborative evidence. In the early cases in which the clinical and objective manifestations are insufficient, microscopic examination of tissue provides the only accurate method of making a positive diagnosis. The iodin reaction of the cervical epithelium, known as the Schiller test, has in recent years served as a distinct aid in the early diagnosis of carcinoma of the uterine cervix. The test is dependent upon the normal glycogen content of the cells of the normal surface epithelium of the cervix, which it stains a deep mahogany brown. Any abnormality in the surface epithelium prevents the absorption of iodin, which definitely demarcates the normal epithelium from the abnormal. In the early application of this test it was interpreted, and accepted by many, as specific for the recognition of early malignant disease. Early malignant disease is usually definitely demarcated from the normal cervical epithelium after the application of Lugol's solution; but lack of absorption of the iodin does not necessarily indicate that malignant disease is present. It is now well known that in leukoplakia of the cervix, superficial ulceration, traumatic disquamation of surface epithelium and other abnormalities, absorption of iodin fails to occur and should not lead one abruptly to the conclusion that early malignant disease exists. The chief value of the Schiller test is the demarcation of normal from abnormal epithelium as an aid in the determination of the extensiveness of the disease as it involves the cervix, and to indicate the areas from which tissue shall be removed for biopsy. In the last analysis the diagnosis of early carcinoma of the uterine cervix is dependent upon competent microscopic examination of tissue representative of the lesion.

Prophylactic Surgery.—Surgical treatment of carcinoma of the cervix may be considered as prophylactic or preventive, and direct. The frequency with which malignant disease of the uterus is encountered makes it incumbent upon the physician to institute thorough investigation of the female pelvis, when clinical manifestations deviate from the normal. While carcinoma of the uterine cervix may occur at any adult age, it is worthy of emphasis that the age of highest incidence is during the fifth and sixth decades of life, coincident with menopausal manifestations; that it occurs most frequently in women who have borne children, and that certain endocervical lesions frequently antedate the development of carcinoma. The surgical repair of cervical lacerations, the thorough surgical eradication of benign ulcerating lesions of the cervix and all other endocervical abnormalities materially reduce the likelihood of carcinoma developing in this situation. Likewise the performance of vaginal hysterectomy for uterine prolapsus, with or without cervical ulceration at or about or beyond age of menopause, instead of the conservative intra-abdominal fixation or suspension types of procedures, is worthy of due consideration as regards prophylactic surgical procedures.

Considerable question exists, and much controversy has arisen regarding the frequency with which carcinoma develops in the remaining cervix following subtotal, abdominal hysterectomy for benign disease in the uterus. It is noteworthy that

carcinoma of the remaining cervix actually does occur, but the exact incidence is unknown. Polak has estimated the frequency of such occurrence at 2 per cent, which is higher than the usual estimate. At any rate, the incidence is sufficiently great to raise the question of total versus subtotal hysterectomy for benign disease of the uterus. A number of reports to the contrary notwithstanding, little question exists that in general the risk and mortality rate of total abdominal hysterectomy exceeds that of subtotal hysterectomy. In the hands of the experienced surgeon this difference is not great. Nevertheless, when indications exist for abdominal hysterectomy for benign disease, the condition of the cervix should determine whether the procedure shall be a subtotal hysterectomy or a total operation with complete removal of the cervix. Objection to total abdominal hysterectomy is sustained in some quarters by the possibility that prolapsus of the vagina and cystocele develop, but such sequelae are readily obviated through the proper fixation of the round and broad ligaments to the vaginal vault. It is needless to say that, in the presence of a normal cervix in a nulliparous woman, the subtotal procedure is entirely justifiable. Also, in the presence of obesity or other associated conditions, in which the simplest type of procedure is advisable, the subtotal hysterectomy may be the most practical procedure for both the patient and the surgeon. Whenever a subtotal abdominal hysterectomy is resorted to in the presence of ancient laceration of the cervix, or other cervical precursors of cancer, vaginal removal of the remaining cervix is incumbent upon the surgeon to the best interests of the patient. The variability of risk and mortality rate between subtotal and total abdominal hysterectomy is so dependent upon many factors that surgical judgment must be relied upon to determine the selection of cases for one or the other procedure. Unfortunately, when carcinoma develops in the remaining cervix after subtotal hysterectomy, the diagnosis usually is not made until the disease is far advanced; and although treatment may prolong life, cure is rarely attained. As a practical consideration, it may be stated that in few women in whom the indications are clear for hysterectomy for benign pelvic disease, is the cervix normal or in good condition and worthy of preservation with impunity. When one gives due consideration to the limited curability of carcinoma of the cervix by surgical procedures or physical agents, the prophylactic removal of the cervix by total hysterectomy for benign uterine disease must strongly become commended as the procedure of choice over subtotal hysterectomy in the absence of contraindications. Likewise, when one dwells upon the potentialities of the remaining cervix, one becomes impressed with the necessity of the surgeon mastering a technique for total abdominal hysterectomy, which entails a low mortality rate comparable to that of the subtotal operation when properly performed, even though infection of the cervix exists.

Direct Surgery.—Carcinoma of the uterine cervix is usually far advanced when opportunity is afforded the institution of treatment, and the consequent curability of the disease is not high. Dr. Frederick V. Emmert of St. Louis recently presented rather startling reasons, obtained through interviews, of a group of patients for the delay in the institution of treatment. One-half of the patients claimed that they had been under the care of a physician for periods of time ranging from two months to one and one-half years, during which time the signs of early malignancy were not recognized. One-fourth of the patients interviewed confessed that their delay in treatment had been due entirely to their own negligence. All of these patients attributed their symptoms to the change of life. One-eighth of the patients consulted a physician early in their illness and were carefully examined. Definite treatment was recommended, but they were afraid to undergo it. In the remaining eighth of the patients immediate recognition of the disease was followed by immediate treatment, and in this group cure was attained in nearly 50 per cent of the cases.

From the surgical standpoint, the operability of carcinoma of the cervix is low, and at best does not exceed 20 to 25 per cent of the cases. Operability is relative only, and is dependent upon the personal equation in the interpretation of operability. Certainly operability has decreased in recent years through more closely drawing the lines between those cases that are truly inoperable, those that are questionably operable, and those that are operable in the strictest sense. Previous to the era of physical agents in the treatment of malignant disease, many patients were operated upon who today would be considered questionably operable or inoperable. With the facilities available for the competent application and utilization of the physical agents, the questionably operable carcinoma cases should seldom, if ever, be operated upon. The doubt about the questionably operable case is based upon extension beyond the cervix. Through a more or less definitely agreed upon classification, the truly operable carcinoma of the cervix is one in which the disease is confined as nearly as can be determined to the cervical canal or vaginal face of the cervix, and this type of lesion is the only one in which surgical treatment may be justifiably considered. There are many who in their hyperenthusiasm are only too ready to treat all patients with carcinoma of the cervix by nonsurgical methods or the physical agents. The utilization of the physical agents has accomplished much in palliation and cure of carcinoma in this situation, but it is worthy of emphasis that an operable lesion is best treated by total hysterectomy. Comparison of results achieved through surgical procedures, and those obtained by the use of the physical agents in the treatment of carcinoma in this situation, are not made readily with accuracy. It is worthy of note that the results of treatment by the physical agents, even though reckoned on many inoperable and questionably operable cases, have been altered by strictly operable cases, as the results of the surgical procedures have been altered by questionably operable and subsequently proven inoperable cases.

It is not within the province here to engage in the discussion of the relative merits of surgical procedures and physical agents in the treatment of carcinoma of the cervix. There is little to suggest that the physical agents may justly supersede or replace surgical procedures in the treatment of early or strictly operable carcinoma of the cervix. One should not be unmindful of associated pathology in the uterine fundus and in the adnexa to complicate the problem of treatment by one method or the other, and alter the indications for one or the other method. The selection of cases for surgical treatment is a matter in which the personal equation, not only in terms of interpretation of operability, but the skill with which the surgical procedure may be executed, is intimately concerned. The problem of treatment not always readily resolves itself into the choice of one method or another, but may advantageously resolve itself into the use of all methods. It may be stated, however, that most cases immediately divide themselves into the operable and inoperable groups. The inoperable cases seldom become surgical, for seldom are surgical procedures advantageously employed after the application of physical agents. However, the physical agents at times may be advantageously employed following the surgical procedure.

Various surgical procedures have in the past been instituted for the eradication of carcinoma of the cervix, a discussion of which is not here in order. Today direct surgery of carcinoma of the cervix is limited entirely to the cases in which the lesion is confined to the cervical canal or the vaginal face of the cervix, without demonstrable extension to the vaginal mucous membrane, without palpable invasion of the structures outside the uterus, and without demonstrable fixation of the pelvic organs, or evidence of remote metastases. To this strictly operable type of lesion the operation of total abdominal hysterectomy in the high lying uterus or vaginal hysterectomy, in the presence of pelvic relaxation, may be advantageously instituted with no greater risk, in competent hands, than the same procedures for benign disease of the uterus, and afford excellent prospects of cure.

In the last analysis, the operability of carcinoma of the cervix in the future is in the hands of the man engaged in bedside medicine; and to him the patient must look for early diagnosis and finally the proper recommendations in treatment.

Traumatism of Skull and Brain.—Jentzer discusses the effect of operation in cranial traumatisms based on the records of 837 cases from 1914 to 1934. There were 366 patients with cerebral contusion who recovered under nonoperative treatment. Seven died in spite of conservative treatment and two in spite of operative intervention. Two hundred and thirty-three patients with cranial fracture recovered under conservative treatment, thirty-nine with fracture recovered after operation, thirty-five died in spite of operation, and seventy-three died without operation. There were eighty-two cases of fracture which could not be used for various reasons. From the study of these cases he concludes that the anamnesis can never be sufficiently complete to dictate the therapeutic procedure. In more than 50 per cent of the fractures, some of a severe character, such as slow pulse and hyperpyrexia, recovery occurred without intervention. Indications for operation are given by the succession of physiopathologic phenomena rather than by any one set of signs. In the severe cases, immediate operation is indicated. This is based on the enormous anatomic lesions observed in 117 necropsies. Such lesions could not be expected to heal without surgical help. In some, microscopic traumatisms develop toward neurologic sclerosis. The changes in the choroid plexus, the different effects of hemorrhage, the sympathetic disorders (congestion, edema, anemia) and the silent lesions might all be helped by early trephining. The author concludes that death is not produced by lesions of the hemispheres alone, of the protuberance, of the peduncle or of the bulb and by hemorrhages, but that cerebral edema, pulmonary lesions and emboli are common fatal complications.—*Journal de Chirurgie.*

Law to Check Abuse of Public Hospital Service.—One of the members of the French chamber of deputies has introduced a bill to prevent further admissions to the public (free) hospitals of those who are able to pay. During the last few years the public hospitals have been overcrowded. Many persons whose means permitted them to enter private hospitals have been admitted because they wished to be under the care of medical men who are chosen on a competitive basis and who represent the leaders of the profession. The public hospital authorities have admitted many who should have been cared for elsewhere because the hospital budgets were greatly reduced. The medical profession has protested in vain thus far; hence this law will prevent abuse of the privilege to enter free hospitals. A committee will be appointed in each department of France. A representative of the administration and two physicians will constitute the personnel of the committee. Only emergency cases and persons who are proved to be indigent or temporarily without resources will be admitted if this bill becomes a law. After investigation of the individual applicant, a card, valid for six months, will be issued to those who are eligible to enter the free hospitals. The deputy in presenting the bill stated that "everything possible must be done to lighten the burden of a profession that has suffered so intensely and yet has remained faithful to its ideal of helping suffering mankind."—*Journal of the American Medical Association.*

Irritants in Adhesive Plaster.—Schwartz and Peck tested twenty-one subjects showing various degrees of adhesive plaster reaction with eleven ingredients of adhesive plaster. One of these developed a generalized reaction, so that individual tests could not be evaluated. Seven of the remaining twenty were negative to the patch tests. Of the thirteen remaining, eight showed positive reactions to wood rosin extracted from the stumps of pine trees; eight to so-called Burgundy pitch; six to I-rosin; five to South American Para rubber, which had been milled, washed and dried; two to beeswax; two to olibanum, and one each to hydrous wool fat, orris root and gutta siac. All the subjects who showed marked reactions at the first removal of the adhesive tape with continued intensification at the second inspection showed positive reactions to one or more of the rosins, and 50 per cent were sensitive to rubber. Seven of the subjects tested who showed a negative or only a slight erythema at the first inspection, but who later developed delayed reactions, were sensitive to one or more of the rosins, and two were sensitive to rubber. The tests seemed to indicate that there are two types of reactions to adhesive tape: one is purely chemical and due to resultant maceration and mechanical trauma from the application and the removal of the plaster, and the other is due to hypersensitivity to one or more of the ingredients of the plaster. The results indicate that the chief irritants in the adhesive plasters that were tested are the rosins, in which can be included the so-called Burgundy pitch and the smoke-cured wild rubber, of which South American Para is an example. An attempt was made to determine whether complexion or previous diseases of the skin or an allergic diathesis had a predisposing effect on sensitivity to adhesive plaster. All the subjects patch tested with adhesive plaster were questioned as to these facts. No such correlation could be established.—*United States Public Health Reports.*

CALIFORNIA MEDICAL ASSOCIATION

This department contains official notices, reports of county society proceedings and other information having to do with the State Association and its component county societies. The copy for the department is submitted by the State Association Secretary, to whom communications for this department should be sent. Rosters of State Association officers and committees and of component county societies and affiliated organizations, are printed in the front advertising section (Adv. pages 2, 4 and 6).

CALIFORNIA MEDICAL ASSOCIATION

ROBERT A. PEERS.....President
EDWARD M. PALLETTE.....President-Elect
FREDERICK C. WARNSHUIS.....
Secretary-Treasurer and Associate Editor for California

SEASON'S GREETINGS FROM PRESIDENT ROBERT A. PEERS

December 25, 1666.

"I to Church, where our Parson Mills made a good sermon. Then home and dined well on some good ribbs of beef roasted and mince pies; only my wife, brother, and Barker and plenty of good wine of my owne, and my heart full of true joy." Samuel Pepys.

* * *

January 1, 1665.

"Lay long in bed, having been busy late last night, then up and to my office, where upon ordering my accounts and papers with respect to my understanding my last year's gains and expense, which I found very great." Samuel Pepys.

* * *

Life, in many respects, has changed little since Pepys wrote his famous diary in the latter half of the seventeenth century. Christmas is still a family day and when one dines with one's family on such good fare as is obtainable and, with the Christmas spirit, one's heart is or should be "full of true joy." New Year's is a day of reckoning, checking up on the old year and preparing for the new. Filled with the spirit of the holiday season, we send greetings to our relatives and friends. As president of the California Medical Association, I should like, more than anything else, to be able personally to meet each member of the California Medical Association and, in person, exchange the season's greetings. This being impossible, I take the opportunity to express the hope that each member of the California Medical Association will on Christmas Day have a "heart full of true joy" and that the new year will not only bring pleasure in retrospect over the happenings of the past twelve months, but will be also the commencement of fifty-two weeks of increased happiness and prosperity.

A Merry Christmas and a Happy New Year!

ROBERT A. PEERS.

STATE AND COUNTY SOCIETY ACTIVITIES

GREETINGS

The officers, Council, and headquarters' personnel extend to members, readers, and advertisers cordial greetings and good wishes for a joyful holiday season.

"May you have friends who love you for what you are, or are not, and keep burning before your wandering steps the kindly light of hope. Though age and infirmity overtake you and you come not in sight of the castle of your dreams, may you still be thankful for life, for time's memories that are good and sweet; and may the evening twilight find you gentle still."

* * *

POINTING ARROWS

"Thirty-five" is rapidly drawing to a close. As the December curtain descends, it is appropriate to pause and note the direction of the "pointing arrows" on the highway of years. Turn back for the moment—Osler, Halstead, Kelly—Bull, Jacobi, Carsten, McGraw, Vaughan! Sell, Billings, Murphy, Dudley, Truedeau, Carman!—names only, a few out of the vista of yester-years, yet withal they with their contemporaries by their professional work and research turned the arrows that lead us on the present highway of scientific medicine, research and practice.

With faces now confidently turned to the future it must be recognized that the responsibility of building the highway for coming years rests upon and with the students and teachers of today. It is theirs to place and space the pointing arrows to guide an advancing profession.

The task is by no means an easy one, with many remaining hills and canyons to overcome and span. Cancer, degenerative diseases, sinus infection, enlarging the scope of preventive medicine, pneumonia, the central nervous system, endocrinology, cardio-renal diseases—these are the hills and canyons through which an advancing highway must be built and along which pointing arrows are to be placed.

The time has not yet arrived to make a declaration similar to those made a century ago and three decades ago—"that there is nothing more to discover in medicine"; it is quite apparent that that millenial day will never arrive. In consequence, the men of medicine of today and the students who will be the men of the tomorrow years will continue to find wide fields in which to pursue research, studies and experiments that will eventuate in placing pointing arrows.

So indeed must we work if the problems of medicine are to be solved. The temple of medicine will never be completed, nor can we hope that labor will give way to rest. No matter how high a summit we climb, higher heights will rise before us ever more.

With opportunity before us, with a realization that we are a part of the organizing force of the universe, shall we not accept the challenge and press on to place our pointing arrows in such a manner that when our day is done those who are to follow us will be able to place confidence in our guiding signs. So for the new year, with these ideals and purposes this thought is proffered:

"To live in the temper and spirit of a learner, open-minded, unwarped in judgment, free, as far as light permits, from delusions, eager to explore and inquire, quick to give up a confuted idea and so gain a higher outlook, striving steadily to improve and to grow—these are watchwords of a person who is striving to advance his intellectual life."

* * *

REFERENDUM ON QUALIFYING CERTIFICATE (BASIC SCIENCE) HEALTH INSURANCE LEGISLATION

The Council at its meeting on November 2 directed the State Secretary to secure a referendum on health insurance legislation and also on qualifying certificate (basic science) legislation.

The following questions have been submitted to members by a postcard with return card attached:

"Do you favor that the Council shall instruct the Association's special committee to secure a Qualifying Certificate Law by initiative at the 1936 November election and to that end expend for signatures, postage, and clerical expenses approximately $35,000 of the Association's reserve funds."

"In order that the Council and officers may be guided, the Council of the California Medical Association desires to obtain the individual opinions of the licensed physicians of California upon the matter of possible legislation establishing either:

"1. Compulsory health insurance which would include certain population groups in an insurance plan administered by a commission probably appointed by the Governor and subject to control by the legislature.

"2. Voluntary health insurance carried on by private lay insurance companies for profit under necessary legislative control by the legislature.

"3. Voluntary health insurance carried on by some form of organization of the licensed physicians of California also under legislative control.

"The Council of the California Medical Association urgently requests that you record your opinion by answering the questions upon the attached postcard. Please mail at once. Please send in a letter any additional comments you may desire to make."

These will have been received by members during the month of November. It is hoped that every member has considered the questions propounded in this referendum and that he has returned the reply post card. If you have not done so, please do so at once, inasmuch as the Council is very desirous of securing the expressions and desires of the majority of our members.

* * *

CONFERENCE OF COUNTY SECRETARIES

The Council, at its meeting on November 2, authorized the State Secretary to arrange for a conference of secretaries of all county societies of the California Medical Association to be held at San Francisco on Saturday, January 18, 1936.

The purpose of this conference is to enable state officers, councilors, and chairmen of important committees to present to secretaries detailed information relative to the activities and policies of the California Medical Association.

During the conference several hours will be devoted to round-table problems of secretaries in order that they may be enlightened as to the duties and responsibilities of their office.

The Council has authorized the payment of the actual traveling expenses of each county secretary to this conference. A detailed announcement will be subsequently mailed to each county secretary. It is the urgent desire of the Council that every secretary attend this conference.

* * *

MEMBERSHIP VALUES

Have you ever evaluated your membership in your county and state medical organization? When you do you will find it to be a valued possession. Pause from time to time to note these membership dividends that accrue to you:

1. County meetings with its papers, clinical cases, discussions, and contact with your fellow members.
2. Postgraduate courses and conferences affording opportunity to remain conversant with scientific progress.
3. Annual state meetings.
4. Monthly issues of CALIFORNIA AND WESTERN MEDICINE that bring you instructive articles, case reports, editorials dealing with scientific questions and economic problems, and reports on state and local activities.
5. Representation in all those state affairs that are of personal concern.
6. Participation in those benefits that result from committee activities. All too often members do not adequately appreciate that which accrues to the individual member by reason of the services of these committees.
7. Listing in medical directories that convey to the public that you have been judged by your peers as having fulfilled the educational and legal requirements demanded of licensed physicians and surgeons. These directories are consulted very frequently by commercial and lay persons who give preference to those who are recorded as members of their county medical society.
8. Membership enables you to meet a qualification that is required by many special organizations for membership affiliation as well as for appointment to certain positions and offices.
9. A qualification that makes you eligible for appointment on the staffs of many hospitals and institutions.
10. Reference of cases from members in other counties and other states. Personal experiences confirms this statement.
11. Entree to national meetings, clinics, and hospitals.
12. Development of improved public relations.
13. Defense of private forms of practice against attempted inroads by corporate forms of practice.
14. Central office with informative and advisory service.

These summarizations fall far short of being a complete appraisal of the value of membership. Neither do they reflect all the benefits. They do, however, indicate the manner by which each member, through personal effort, may develop and increase his dividends from affiliation.

There must be a certain unjustified bias in the eligible nonmember who refrains or refuses to become and remain affiliated with the organization of his profession. In addition, that individual is benefiting, in a certain degree, by reason of organized activity for which he makes no personal contribution. He forfeits self-respect when he remains content to continue in his isolated position in the outer fringes, while his fellows underwrite the benefits he enjoys.

* * *

GRADUATE MEDICINE

There are thirty medical schools in the United States that make available graduate study opportunities. Some of them conduct their courses along the lines of their undergraduate courses, while a certain number afford excellent courses with personal opportunities.

Graduates in medicine have not embraced graduate study in very large numbers. Records reveal that less than four per cent of the practicing physicians attend these graduate courses. Reasons for nonattendance are:

1. Expense of travel, tuition, and increased living expense for himself and family.
2. Loathe to leave his practice.
3. Lack of self-interest.
4. Satisfied with medical meetings.

It is well recognized that for a physician to remain abreast of medical practice it is incumbent that the physician spend some time each year in graduate study. To overcome the mentioned reasons for nonattendance and to stimulate graduate study the State Medical Association undertakes to provide a series of graduate conferences, at stated intervals, in convenient centers of the State. Six-day courses are given during the year in the four medical colleges. Plans are now being developed for a six-day intensive course in the Los Angeles County Hospital and in the San Francisco County Hospital. Members of the faculty of the two schools in Los Angeles and San Francisco will have joint representation on the daily program. Due announcement will be made in order that members may arrange to attend. A very small registration fee to pay actual expenses will be charged.

In addition, the medical colleges will arrange special courses in their own institutions.

By the first of the year there will be little, if any, excuse for California physicians not to engage in graduate work each year. From this activity the physician and his patient will reap benefit.

* * *

HISTORICAL RECORDS

Records relating to the early days of medicine in California are being sought for the Association archives. Members are requested to send their reminiscences of early days in California and any records, papers or books that they may have in their files. Minutes of medical societies are particularly desired.

* * *

REVISED STATE NARCOTIC ACT

The 1935 legislature amended the State Narcotic Act. Members are urged to write to the Chief, Division of Narcotic Enforcement, 156 State Building, San Francisco, for a copy of the revised law.

The following is a partial summary of the act:

Restricting possession of narcotics.

Information on prescriptions.

Keeping of records.

Purchase of wholesale quantities, and reporting purchases.

Self-administration.

Prescribing for addicts.
Records of treatment.
Record of narcotics.
Loss of license to practice.

All the responsibilities that rest with physicians are covered in these sections. It is quite imperative that every physician familiarize himself with these requirements of the law and observe them to the letter. The keeping of records and the filing of required reports within specified dates will prevent becoming entangled in this law. No physician can afford to be careless in the dispensing or prescribing narcotics. There is but one course and that is to observe the provisions of this law.

* * *

COUNTY INTEREST

During the middle of October, President Peers and four officers of the Association visited county societies in the northern part of the State. Meetings were held at Marysville, Chico, Crescent City, and Eureka. At these meetings members were present from Butte, Lassen, Plumas, Modoc, Tehama, Shasta, Siskiyou, Del Norte, Trinity, and Humboldt counties.

Discussion was had of the objectives of the State Association, of local problems, and by questions and answers first-hand information was imparted.

It was extremely gratifying to perceive the earnest interest reflected by the members in this part of the State. Each meeting was well attended. Some of the members traveled 268 miles on their journey to the meeting place and back to their homes. What is more interesting is that they cover that distance each month for their society meetings. It is impossible to adequately applaud and commend such loyalty. All praise is due to these men of medicine. Their example might be called to the attention of our metropolitan members who complain about going a few miles, and even a few blocks, to their county society meeting.

An attest can be recorded that these members in these rural and mountain regions are rendering high-grade and competent medical care to their communities. Cases seen in their hospitals and in homes and their hospital records revealed approved modern practices, skill, and ingenuity.

These visits and contacts afforded genuine pleasure and created a definite conclusion that the members of these societies contribute their part in upholding the high professional and organizational standards of California's medical profession.

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ITEMS OF PASSING INTEREST

The Texas State Medical Association has established permanent headquarters in Fort Worth by the purchase of a commodious residence. From description it is undoubtedly suitable for the needs of their executive offices. The total cost was $10,000.

A registration of over 2,000 was reported for the College of Surgeons' meeting in San Francisco, October 28 to November 2. Dr. Eugene H. Pool of New York City was elected president for 1937. Dr. Emile Holman of San Francisco was named first vice-president, and Dr. George E. Wilson of Toronto, second vice-president.

The Pacific Coast Obstetrical and Gynecological Society elected Dr. Clarence A. DePuy as president at its meeting in Los Angeles.

The Committee on County Hospitals, created at the Yosemite meeting, is making a thorough study of these tax-supported hospitals. County societies are urged to respond promptly to requests for information in order that a comprehensive report can be presented at Coronado.

Membership in the medical society of the State of California assures you desirable legal counsel. Send for an application blank to obtain this service during the coming year.

The minutes of the November Council meeting are printed in this issue. Important matters were considered upon which you should be informed.

* * *

WORTH PONDERING UPON

Faith that literally can move mountains is in disaccord with human experiences. Nothing aside from earthquakes has proved itself competent for this undertaking.

Confusion in the use of the terms "faith" and "belief" is almost universal. Simple "faith" is closely related to human happiness. The falsely so-called "belief" is, on the contrary, often arrogant and impels to bellicosity and intolerance.

Of many commonly used words it may be said that they represent no actual human experience. "Consistency," for example, was never in completeness attained in a human life. It is rarely exemplified in conduct or in the man-made laws governing behavior and determining judicial procedure.

COUNCIL MINUTES*

Minutes of the Two Hundred and Thirty-Ninth Meeting of the Council of the California Medical Association

The following minutes were approved by the Council by mail vote.

A special meeting of the Council was held in Room 309, Sir Francis Drake Hotel, San Francisco, Saturday, November 2, 1935.

1. **Call to Order.**—The meeting was called to order by Chairman T. Henshaw Kelly, with the following members present: President Robert A. Peers, President-elect Edward M. Pallette, Speaker W. W. Roblee, Chairman T. Henshaw Kelly; Councilors Karl L. Schaupp, Carl Howson, Henry J. Ullmann, A. E. Anderson, A. L. Phillips, O. D. Hamlin, Henry S. Rogers, C. L. Emmons, M. R. Gibbons, W. H. Kiger, C. E. Schoff; Chairman of Public Relations C. A. Dukes, Editor George H. Kress, Secretary F. C. Warnshuis, and General Counsel Hartley F. Peart.

Absent: Councilors C. O. Tanner and H. H. Wilson.

2. **Minutes of the Council.**—It was moved by President-elect Pallette, seconded by Chairman of Public Relations Dukes, that the minutes of the 236th, 237th, and 238th meetings of the Council, as published, be approved. Carried.

3. **Financial Statements.**—Financial statement for the month of September, 1935, was read by the secretary and on motion of Councilor Ullmann, seconded by Chairman of Public Relations Dukes, was approved.

The secretary was instructed to send a copy of the monthly financial statements to all councilors.

The secretary reported that $35,129.26 had been expended to date by the Committee of Five on the Economic Survey and that there was an additional outstanding liability of approximately $250 for actuarial expense; that the Committee of Six had expended $4,736.19.)

After discussion of the most suitable type of investment for the reserve funds of the Association, on motion of Councilor Kiger, seconded by Councilor Ullmann, a special committee was appointed, consisting of the president, the president-elect, the chairman of the Council, and the secretary, to investigate investment securities suitable for investing the reserve funds and report to the Council at its next meeting.

4. **Retired Membership.**—Upon presentation of membership data and request from the Los Angeles County Medical Association, it was moved by Speaker Roblee, seconded by President Peers, that Francis Rogers, Los Angeles, be granted retired membership in the California Medical Association. Carried.

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* The minutes of the two hundred and thirty-eighth meeting of the Council of the California Medical Association were printed in the October, 1935, issue of CALIFORNIA AND WESTERN MEDICINE, page 302.

5. **Committee of Five.**—The secretary reported that a typewritten copy of the economists report on the medical survey had been received.

It was moved by President-elect Pallette, seconded by Councilor Ullmann, that the secretary be instructed to secure a copyright of this report and that a copyright be also secured on any future amendments to the report. Carried.

It was moved by Chairman of Public Relations Dukes, seconded by Councilor Schoff, that any further activity or work connected with the rewriting, reëditing or any modification or study of the medical survey report shall be without expense to the California Medical Association and that no further expense be incurred without the approval of the Council, and that all individuals, including the Committee of Five, be so informed. Carried.

6. **County Society Conference.**—President Peers and Secretary Warnshuis outlined the desirability of a county officers' conference, and the secretary presented a tentative program for such meeting.

It was moved by President Peers, seconded by President-elect Pallette, that a conference of county society officers be held on January 18, 1936, and that the California Medical Association pay the expense of the secretary of each county society or his selected representative. Carried.

It was moved by President-elect Pallette, seconded by Councilor Anderson, that the county officers' conference be held in San Francisco. Carried.

7. **Annual Session Program.**—In accordance with the action recorded by the Scientific Committee, the secretary reported that invitations had been extended to Evarts Graham of St. Louis, J. C. Litzenberger of Minnesota, Franklin Ebaugh of Denver, and the president of the American Medical Association to appear as invited guests of the California Medical Association at the Coronado meeting, and that the Committee on Scientific Work requested that the Council appoint a Committee on Scientific Exhibits.

It was moved by Chairman of Public Relations Committee Dukes, seconded by Councilor Gibbons, that the recommendation of the Scientific Committee regarding invited guests be approved and that the chairman of the Council be authorized to appoint a Committee on Scientific Exhibits. Carried.

8. **Assembly Bill 246—Hospital Insurance.**—Dr. John H. Graves and Mr. Monaco were granted the privilege of the floor by the Council. Doctor Graves read a copy of a letter from Doctor Johnson addressed to Doctor Schaupp and stated that he appeared as a representative of a meeting held at St. Mary's Hospital and that he had been requested to appear before the Council and endeavor to secure its support of the hospital insurance plan that was being inaugurated by St. Luke's Hospital and other hospitals in the city and county of San Francisco.

Mr. Monaco then explained the plan in detail.

The attention of the Council was called to the constitutional provisions and the rules adopted by the Council that all problems and plans originating in a county should first be presented to the county society.

It was moved by the Chairman of Public Relations Committee Dukes, seconded by Councilor Ullmann, that the recommendation of Councilor Schaupp that the whole matter be referred back to the San Francisco County Medical Society and that it come through the regular channels from the county society through the Department of Public Relations to the Council, be adopted. Carried.

9. **Poll of Physicians on Health Insurance.**—Doctors Nathan Hale, Orrin Cook and William Van Den Berg of Sacramento appeared before the Council to present the request of the Sacramento Society that a poll of all licensed physicians and surgeons in California be taken on the question of health insurance.

It was moved by Councilor Schoff, seconded by Councilor Anderson, that the Council send out a questionnaire on health insurance in the form of a return post card before December 1. Carried.

The questionnaire was then submitted and on motion of Peers, seconded by Ullmann, and carried, the following form of questionnaire was approved.

1. Shall the California Medical Association endorse any legislative change in the present system of medical practice? *Yes. No.*

(If your answer to No. 1 is "No" do not answer No. 2 and No. 3.)

2. Are you in favor of compulsory health insurance? *Yes. No.*

3. Are you in favor of voluntary health insurance? *Yes. No.*

(If your answer to No. 3 is "Yes," answer (*a*), (*b*) and (*c*).

(*a*) Voluntary health insurance under a plan carried on by the State of California? *Yes. No.*

(*b*) Voluntary health insurance carried on by lay companies under legislative control? *Yes. No.*

(*c*) Voluntary health insurance carried on by some form of organization of licensed physicians of California, created by legislation? *Yes. No.*

4. Are you a member of the California Medical Association? *Yes. No.*

10. **Hospital Insurance.**—Dr. Daniel Crosby, representative of the Alameda County Medical Society on the proposed hospital insurance plan in Alameda, stated that it was the desire of Alameda County to have the sanction and approval of the Council for the proposed hospital insurance plan in Alameda County.

As chairman of the Committee on Hospitals, Dispensaries, and Clinics, Doctor Crosby then presented the following recommendations to the Council on behalf of Dr. C. A. Dukes, chairman of the Committee on Public Relations:

"Pursuant to Council action, the Committee on Public Relations and the Committee on Hospitals, Dispensaries and Clinics, at a joint meeting held October 13, 1935, considered A. B. 246. The following recommendations are made to the Council:

"1. The California Medical Association reaffirms its interest and its desire to coöperate with all other agencies looking forward toward the provision of hospital services for the people on the periodical payment plan.

"2. The California Medical Association believes that it is the duty of this organization and an obligation to assume leadership in this movement and make available and proffer advisory counsel to all agencies that propose to supply hospitalization facilities by means of an insurance plan as outlined and provided for in Assembly Bill A. B. 246 that was passed by the 1935 session of the Legislature and become a law on September 15, 1935.

"3. For the purpose of preventing untoward conditions and practices, the California Medical Association formulates the following governing policies that must be accepted and observed in every non-profit corporation writing hospital insurance under Assembly Bill A. B. 246 in order that such corporation may secure the approval and endorsement of the California Medical Association.

Governing Principles

"1. Hospital services that are provided by non-profit corporations shall not include medical services or medical care as these have been defined by official action of the House of Delegates of the American Medical Association.

"2. In all such propositions or plans that seek to provide hospital care, the individual shall be accorded a free choice of entering any approved hospital.

"3. The conditions or terms of any policy that provides for hospitalization shall not create an interference with the patient-physician relationship and shall give to the individual the right of free choice of a licensed physician and surgeon.

"Recommendation No. 1. Your committee recommends that the Council delegate to the Department of Public Relations the responsibility of approving the non-profit corporation policies that are written for the purpose of providing hospital insurance.

"Recommendation No. 2. That the Council delegate to the Committee on Public Relations the authority to act in an advisory capacity to all hospitals, non-profit corporations and county medical societies that purpose to issue hospital insurance policies.

C. A. DUKES,
DANIEL CROSBY."

It was moved by President-elect Pallette, seconded by Councilor Ullmann, that the report of the chairman of the Committee on Public Relations be adopted. Carried.

After discussion of the practice of pathology and radiology, on motion of Ullmann, seconded by Kress, the matter was referred to the Committee on Public Relations for the formulation of a resolution and report to the Council at its next meeting. Carried.

It was moved by Councilor Hamlin, seconded by Councilor Gibbons, that the matter of approval of contracts to

subscribers, solicitation, etc., be laid on the table for future consideration. Carried.

Rufus Rorem, Ph. D., at the invitation of the Council, explained the growth of hospital insurance in the United States.

It was moved by Editor Kress, seconded by Councilor Gibbons, that the Council extend to Doctor Rorem a vote of thanks. Carried.

11. **Conference of State Secretaries.**—Secretary Warnshuis stated that he was planning to attend the Conference of State Secretaries in Chicago, if the Council approved, from November 5 to 19, 1935.

It was moved by President Peers, seconded by President-elect Pallette, that the secretary's attendance at the State Secretaries' Conference in Chicago be authorized. Carried.

12. **Public Health Institute.**—A letter from Glenn Meyers, president of the Public Health League of California was read and the attitude of the Public Relations Committee explained by the secretary.

It was moved by President-elect Pallette, seconded by Councilor Ullmann, that the action of the Public Relations Committee be approved. Carried.

13. **Reference Library.**—Discussion was had of the desirability of establishing a reference library in the Association office for use in connection with the press publicity and other activities being carried on by the Department of Public Relations. The possibility of establishing such a library by retaining review books and exchanges in the State Association office was discussed and the matter was referred for further consideration at the next meeting of the Council. Councilor Schaupp was authorized to take the matter up with the San Francisco County Society.

14. **Council Meeting.**—On motion duly made, seconded and carried, the date of the next Council meeting was set as January 18 and 19, 1936, at San Francisco.

15. **Basic Science Act.**—Full discussion was had of the proposed basic science or qualifying certificate act. Doctor Kress explained the procedure to be followed in securing an initiative and estimated an approximate expense of $35,000.

A vote of the members of the Council was taken on the question of "Shall a referendum vote of the members of the Association be taken to determine by initiative vote of the people of California at the 1936 November election whether or not a basic science act be enacted."

The following members, constituting three-fourths of the members of the Council, being in favor of such referendum vote, the secretary was instructed to proceed with the taking of such vote of the members of the Association: Doctors Peers, Pallette, Roblee, Kelly, Howson, Ullmann, Anderson, Phillips, Schaupp, Hamlin, Rogers, Emmons, Dukes, Kiger, Schoff, and Gibbons.

The form of referendum vote as determined by the Council is as follows:

"Do you favor that the Council shall instruct the Association's Special Committee to secure a Qualifying Certificate Law by initiative at the 1936 November election and to that end expend for signatures, postage and clerical expenses approximately $35,000 of the Association's reserve funds?"

On motion duly made, seconded and carried, the chairman of the Special Committee, Editor Kress; Councilor Gibbons, Doctor Kelly, chairman of the Council, and the secretary were authorized to conduct the referendum vote and the time fixed for closing the ballot was two weeks after date of mailing.

16. **Clerical Expense.**—It was moved by Councilor Phillips, seconded by President Peers, that the secretary be authorized to secure additional clerical help for the conducting of the poll of physicians on health insurance. Carried.

17. **Goodall Versus Brite.**—The general counsel reported on the present status of the case of Goodall versus Brite. It was suggested that the general counsel be present at the hearing of the case.

18. **Francis Versus Nelson.**—The general counsel reported that the opposing side had requested additional time for preparing brief.

19. **Pacific Employees' Insurance Company.**—The general counsel reported on the status of this case stating that the Superior Judge had decided against the Attorney-General.

General Counsel Peart reported that another decision that corporations cannot practice medicine had been rendered in the case of the Pacific Health Corporation, making a total of approximately five such decisions in California.

20. **Committee on Tax-Supported Hospitals.**—Councilor Anderson reported on the progress of the Committee on Tax-Supported Hospitals and Medical Care, stating that questionnaires had been sent out from which data would be compiled, and that the committee intended to interview individuals who were intimately acquainted with the problem.

It was the sense of the Council that an editorial on the question should be published in the JOURNAL.

It was moved by Councilor Schaupp, seconded by Councilor Ullmann, that expense, not exceeding the $500 appropriation already made, incurred by the Committee on Tax-Supported Hospitals and Medical Care be paid on approval of proper itemized expense accounts by the Auditing Committee. Carried.

21. **Expenditure of Funds.**—On motion of Councilor Schaupp, seconded by Councilor Ullmann, the following resolution was adopted:

Resolved, That for the purpose of establishing better control of expenditures of the Association funds, no officer, or committee, of the California Medical Association shall incur any financial obligation or indebtedness until such expenditure has been submitted to the Association's secretary, who in turn shall secure the approval of the Auditing Committee and the Association's signed requisition authorizing expenditure is then sent to the officer or committee, and be it further

Resolved, That the Association secretary be instructed to send this resolution to all officers and committees of the Association.

22. **Advisory Counsel.**—The chairman presented correspondence from Professor Canning, who was the economic adviser to the Committee of Six on Health Insurance legislation, and on motion of Councilor Schaupp, seconded by Councilor Gibbons, the Auditing Committee was authorized to approve the payment of the balance of $1,050 to Professor Canning. Carried.

23. **Councilor Luncheons.**—It was moved by Councilor Ullmann, seconded by Speaker Roblee, that the California Medical Association hereafter pay the expense of the luncheon for councilors on the days of Council meetings. Carried.

24. **District of Columbia.**—Reply to the District of Columbia Medical Society communication was referred to the next meeting of the Council.

25. **Adjournment.**—There being no further business, the meeting adjourned.

F. C. WARNSHUIS, *Secretary.*
T. HENSHAW KELLY, *Chairman.*

COMPONENT COUNTY MEDICAL SOCIETIES

ORANGE COUNTY

The November meeting of the Orange County Medical Association, held in the chapel of the Orange County Hospital, was called to order by President Hawes.

Dr. Llewellyn Wilson, surgical resident of the Orange County Hospital, was unanimously elected to membership.

Doctor Farrage reported for the Disaster Committee in a detailed manner. This Disaster Committee consists of stations and depots throughout the county where the men are to report in case of major disaster. The work originated in the Santa Ana Post of the American Legion, and was confined only to Santa Ana. The present set-up combines the Legion, Red Cross, and County Medical Association, and the scope is greatly extended. The report was accepted and his committee discharged.

Dr. A. B. Cooke of Los Angeles gave the scientific paper, and spoke on *Thyroidectomy as Contemplated by*

the Patient. His paper showed thorough understanding of thyroid disease as well as the patient's viewpoint. Considerable discussion followed. Adjournment followed.

WALDO S. WEHRLY, *Secretary.*

PLACER COUNTY

The Placer County Medical Society held its annual meeting in the Freeman Hotel, Auburn, Saturday evening, November 9. The meeting was called to order at 8:25 o'clock by President Louis E. Jones. There were present the following members and visitor:

Members—Doctors P. D. Barnes, J. A. Russell, C. C. Briner, W. M. Miller, Lucas W. Empey, R. H. Eveleth, Robert A. Peers, J. Gordon Mackay, Ray C. Atkinson, D. M. Kindopp, W. A. Vinks, Max Dunievitz, C. E. Lewis, and Vernon W. Padgett.

Visitor—Dr. C. E. Schoff, councilor for the Eighth District.

The president then stated this being the annual meeting that election of officers was in order.

The following officers were unanimously elected: President, Louis E. Jones of Roseville; vice-president, C. E. Lewis of Auburn; secretary-treasurer, Robert A. Peers of Colfax. Delegate to 1936 convention, Lucas W. Empey of Roseville; alternate, Mildred E. Thoren of Weimar.

The secretary-treasurer then read the secretary's report and the treasurer's report, which were approved and adopted.

A resolution on the death of the late Dr. Eugene H. Bryan was presented by a committee composed of Doctors Peers, Dunievitz, and P. D. Barnes. The resolution was adopted and the secretary directed to send a copy to Doctor Bryan's widow.

The secretary then read correspondence from State Secretary Warnshuis, consisting of twelve communications. Action was taken on the following:

Dr. Louis E. Jones of Roseville, Dr. C. E. Lewis of Auburn, and Dr. W. A. Vinks of Lincoln were appointed a committee to contact the libraries of Auburn, Roseville, and Lincoln, as requested in State Secretary Warnshuis' letter.

Dr. C. E. Lewis and Dr. Ray C. Atkinson were appointed a committee to coöperate with Doctor Packard, chairman of the Committee on Tax-Supported Hospitals, and fill out the questionnaire furnished by the committee.

The president then called upon Dr. C. E. Schoff, district councilor, who, among other things, discussed the following subjects:

Questionnaire on health insurance, which is shortly to be presented to the members of the California Medical Association.

Medical Publications, Inc.

Assembly Bill 246.

Public Health Institutes.

W. B. Mayo Foundation.

Packard Hospital Committee.

Postgraduate Conferences.

Questionnaire on Basic Science Act.

At the close of his address an unanimous vote of thanks was extended Doctor Schoff by the members of the Society.

The meeting then adjourned for refreshments.

ROBERT A. PEERS, *Secretary.*

SACRAMENTO COUNTY

A regular meeting of the Sacramento Society for Medical Improvement was called to order by the president, Orrin S. Cook, the evening of October 15 at the Elks Temple.

Forty-eight members and guests were present.

The paper of the evening was delivered by Dr. Albert Petit, associate professor of gynecology at Stanford University Medical School. The subject was *Vaginal Hysterectomy, with Some Fallacies in Regard to Repair of the Perineal Floor.* Doctor Petit illustrated his paper by the use of motion pictures. The subject created a great deal of comment and discussion. Those discussing the paper were: Doctors Ankele, Kanner, Harris, Burden, Frank MacDonald, Foster, and Norris Jones.

The application for membership presented by Doctor Almada was read for the second time and his name voted upon. Doctor Almada was unanimously elected to membership in the Sacramento Society for Medical Improvement.

Dr. Dave Dozier announced the Northern District medical meeting, which was to be held on November 2.

FRANK WARNE LEE, *Secretary.*

SAN BERNARDINO COUNTY

A meeting of the San Bernardino County Medical Society was held at the San Bernardino County Charity Hospital on November 5.

The meeting was called to order by the president at 8 p. m.

The following applications for membership were voted on and approved: Doctors Marvin K. Paup of Needles, H. P. Nottage of Ontario, Justin W. Neighbor of Arrowhead Springs, and Robert G. Williamson of Ontario.

Mr. H. F. Zbinden, representing the Sparkletts Water Company, extended a group invitation to the Society to attend a football game in Los Angeles, following a trip through the company plant.

After some discussion it was moved and seconded that the invitation for the date of December 7 (University of Southern California versus University of Washington game) be accepted.

Dr. C. L. Emmons, district councilor, then spoke briefly on the Basic Science Bill and the proposed vote by mail on the expenditure of funds necessary to sponsor the bill.

He also explained the vote by mail concerning sickness insurance. Members were urged to vote on these questions and mail the cards promptly.

The program of the evening was then given as follows: Mr. Harold P. Thoreson, Director SERA; Report of County Tuberculosis Survey, Dr. E. B. Godfrey and Charles Cree, County Health Unit; *Unusual Manifestations of Disease,* Dr. Verne R. Mason of Los Angeles.

The meeting adjourned at 10:30 p. m.

A. E. VARDEN, *Secretary.*

SAN JOAQUIN COUNTY

The November meeting of the San Joaquin County Medical Society was held in the Medico-Dental clubrooms, Vice-President T. C. O'Connor presiding.

The scientific session was preceded by the customary supper meeting at the Hotel Wolf, at which eighteen members were present. Interesting papers were presented by Doctor Sheldon on *The Treatment of Cancer by Radium and X-Ray* and Doctor Doughty on *The Diagnosis and Treatment of Amebiasis by the General Practitioner.*

A report was given on the postgraduate study group by Dr. J. P. Hull, who stated that the group was progressing very nicely and that there had been forty-seven members signed up for the course. The following resolution, prepared by Dr. Dewey Powell, was read and ordered spread on the minutes:

"On October 18, 1935, the members of the San Joaquin County Medical Society were shocked and grieved to learn of the sudden passing of Dr. Ralph G. Cressman. He passed away at the St. Joseph's Hospital from an acute perforating gastric ulcer with profuse hemorrhage.

"Doctor Cressman was graduated from the Bennett Medical College in 1905 and practiced in Oglesby, Illinois, from 1905-1917. From 1917-1919 he was in the Medical Corps of the United States Army. He practiced in Hastings, Nebraska, from 1919-1928; was with the United States Veterans' Bureau from 1928-1933.

"He came to Stockton in the fall of 1933. During his two years' residence in this city he had taken an active part in the professional and civic life of the community. He was extremely active in the work of the American Legion and the Veterans of Foreign Wars, particularly in their boys' work activities. He gave much personal time to the Boy Scout troups. He was active in the church life of the First Congregational Church and in the service club work of the city.

"His sudden passing at the age of fifty-five removes a valued member of the profession and an esteemed citizen of the community at a time when his talents and experience made him most useful.

"The members of the Society desire to express their high regard for Doctor Cressman, and to convey to his widow and children their most sincere regret in their great loss. Therefore, I move you, Mr. President, that this committee report be spread in full upon the Minutes of this Society and that a copy be sent to the widow of our departed member."

The following nominations were placed in order for officers for the year 1936: President, T. C. O'Connor; first vice-president, John Blinn; second vice-president, A. L. Van Meter; secretary-treasurer, G. H. Rohrbacher. Delegates to State Association convention, Dewey Powell and C. A. Broaddus; alternates, T. C. O'Connor and M. H. Smyth. Directors, Doctors Dewey Powell, Harry Kaplan, R. T. McGurk, H. J. Bollinger, George Sanderson, P. Gallegos, and F. Doughty.

Dr. Dewey Powell moved that the formality of sending out ballots and printed forms be dispensed with so as to save the cost of mailing, as there was no opposition to any candidate. This was seconded by Doctor Gallegos, and the motion carried.

The paper of the evening was presented by Dr. Clifford D. Sweet of Oakland, who talked on *Abdominal Pain in Children*. This was a very able presentation, and was discussed by Doctors Richardson, Hull, English, C. V. Thompson, Collis, Blackmun, Doughty, and O'Connor.

Irving Neumiller, local attorney, addressed the Society *On the Value of the Community Chest*.

There being no further business to be brought before the Society, the meeting was declared adjourned at 10:15 o'clock and refreshments were served.

G. H. Rohrbacher, *Secretary*.

SONOMA COUNTY

The Sonoma Sounty Medical Society held its regular meeting on November 16 in the Clover Inn, Cloverdale, Dr. F. O. Butler presiding. Thirty-four guests were present, including two from San Francisco, eleven from Mendocino County, and all enjoyed a sumptuous turkey dinner before proceeding with the business of the evening.

Dr. Z. E. Bolin, pathologist of San Francisco, was then introduced and he gave a highly instructive discourse upon the necessity and benefits of postmortem examinations in all cases where a question might arise as to the cause of death. Doctor Bolin believes that it would be for the benefit of humanity in general if all deaths were followed by a careful postmortem. Doctor Bolin was asked many questions, which he readily and definitely answered. All present were highly gratified with the program.

Regular routine business was transacted, committees reported on their particular activities, and a general good time was enjoyed by all present.

W. C. Shipley, *Secretary*.

VENTURA COUNTY

The regular monthly meeting of the Ventura County Medical Society was held August 13 in the County Clinic Building.

Members present were: Doctors Strong, Drace, Hendricks, S. Clark, Welch, and Morrison. Guests were: Doctors Ryan and Ditto from the County Hospital and Mr. Teague of Santa Paula.

The State Secretary's monthly letter was read, and also the letter dealing with the formation of an emergency medical corps for the Fire-Fighting Patrol.

Since a quorum was not present no business was transacted.

Mr. Teague then projected several reels of film, showing "Modern Methods of Anesthesia," which were sent to the Society by courtesy of the Winthrop Chemical Company.

The October meeting of the Ventura County Medical Society was held on Tuesday the 8th at the Pierpont Inn, Ventura.

There were twenty members and four guests present. Guests were: Doctors Anderson of Los Angeles, Allen of Ventura, Neilson of Oxnard, and Nelson of Fillmore.

Following dinner the meeting was called to order by Acting President Shore. Dr. William Nance Anderson of the University of Southern California was introduced and gave an excellent paper on *The Physical Diagnosis of the Heart*.

Report of Committee for Revision of By-Laws, Dr. C. Smolt, chairman: "The revised by-laws will be ready for approval by the members of the Society at the next meeting."

Communications from the State Secretary's office in regard to WPA, Assembly Bill 246, libraries, and the Public Health Institute were read. Also one from the Public Health League offering to give a report on legislation.

Only two of the members present had had any definite instruction for the care of WPA cases. Doctor Homer stated that the County Hospital would not admit such cases, as the rates allowable entitled them to care in private hospitals.

No definite action was taken on Assembly Bill 246, as none of those present felt well enough informed of conditions in the county to suggest definite action. Most of the comments seemed to favor the organization of a state plan by the California Medical Association.

Since there is to be no generalized county gatherings and no suitable hall available, Doctor Smolt moved and Doctor Hendricks seconded, that no Public Health Institute be held this year. Motion carried.

In view of the increased turnout of members for this meeting, it was decided to have dinner meetings for the rest of the year. It was suggested that the meetings be held in the program chairman's home town.

A. A. Morrison, *Secretary*.

CHANGES IN MEMBERSHIP

New Members (24)

Alameda County.—Louis E. Martin, J. Scott Quigley.

Lassen-Plumas County.—Garrison A. Frost.

Los Angeles County.—Chester D. Dixon, Harry Flyer, J. Louis Freibrun, R. C. Gilliland, Edward W. Jones, Orren Lloyd-Jones, Earl L. Lupton, Thomas J. Rogers, Earl M. Tarr.

Orange County.—Llewellyn E. Wilson.

San Diego County.—C. N. Allison.

San Francisco County.—Jack Cohn, Rinaldo Giovannetti, John S. Hanten, Marcia S. Hays, William C. Hobdy, Edgar H. Howell, George J. Karfiol, Irving Schwartz, Kahn Uyeyama.

Santa Barbara County.—Johnette G. Dispensa.

Transferred (1)

Clarence Quinan, from San Francisco County to Placer County.

In Memoriam

Cressman, Ralph Gates. Died at Stockton, October 18, 1935, age 55. Graduate of Bennett College of Eclectic Medicine and Surgery, Chicago, 1905. Licensed in California in 1933. Doctor Cressman was a member of the San Joaquin County Medical Society, the California Medical Association, and the American Medical Association.

Kiefer, Hugo Albert. Died at Los Angeles, October 26, 1935, age 65. Graduate of the University of Pennsylvania School of Medicine, 1897, and licensed in California the same year. Doctor Kiefer was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

Parsons, James Jerome. Died at Monrovia, October 18, 1935, age 51. Graduate of Syracuse University College of Medicine, 1913. Licensed in California in 1925.

Doctor Parsons was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

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Schroeder, Leo Adelmo. Died at Los Angeles October 29, 1935, age 55. Graduate of the University of Southern California School of Medicine, Los Angeles, 1907, and licensed in California the same year. Doctor Schroeder was a member of the Los Angeles County Medical Association, the California Medical Association, and a Fellow of the American Medical Association.

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Silliman, John Calvin. Died at Palo Alto, October 27, 1935, age 57. Graduate of Columbia University College of Physicians and Surgeons, New York, 1904. Licensed in California in 1915. Doctor Silliman was a member of the Santa Clara County Medical Society, the California Medical Association, and the American Medical Association.

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Weaver, Archibald Carlton. Died at Los Angeles, October 25, 1935, age 49. Graduate of Western Reserve University School of Medicine, Cleveland, 1911. Licensed in California in 1923. Doctor Weaver was a member of the Los Angeles County Medical Association, the California Medical Association, and the American Medical Association.

OBITUARY

Adolph H. Nahman

1877-1935

Dr. Adolph H. Nahman, age fifty-eight, passed away on September 21, 1935. He received his degree of Doctor of Medicine in 1909 from the Northwestern University Medical School, Chicago, Illinois, and was licensed in the same year. After graduation he came to San Francisco, interned at Southern Pacific Hospital, and early became associated with Mount Zion Hospital, where he attained the position as senior associate of the medical department and chief of the out-patient department. He was a fellow of the American Medical Association, a member of the California Medical Association and the American College of Physicians.

A great doctor has passed. A kindly, pleasant, cheerful soul who knew no hours, no creeds, no caste when the sick called. He gave of his remarkable ability and rich store of knowledge to poor and wealthy alike. No home was too lowly, no patient too trying for him to extend a sympathetic hand.

Doctor Nahman truly typified the family physician. He entered the homes of his patients as a friend and adviser. He thoroughly knew and understood his people and their peculiarities. He personally supervised and attended upon every technical procedure done upon his patients.

To nurses, hospital personnel and physicians who knew him he was unanimously "their doctor." As an exponent of the sadly neglected art, bedside medicine, he had no equal. His personal and detailed close observation, combined with comforting and rational therapy based on an alert understanding of every advance in modern medicine, instilled confidence. He spent his life in study and work and attained a perfection in clinical medicine which is rarely reached. Despite the heavy load of a tremendous general medical practice which was city-wide, he considered his daily hours in the free clinic of the Mount Zion Hospital of prime importance. Remarkable were the detailed accurate hand-written clinical records which reflected the inexhaustible energy and studious attitude of this family doctor.

Doctor Nahman's interests were not exclusively confined to medicine. His devotion to his family was a prominent feature of his life. He loved music, and his hobbies were photography and gardening. He traveled widely and was much interested in general human affairs.

To those who knew him his memory will ever endure. "And his work continueth greater than his knowing."

C. M. A. DEPARTMENT OF PUBLIC RELATIONS†

Home for Aged Physicians

AMERICAN MEDICAL ASSOCIATION

Dear Doctor Warnshuis:

Your letter of October 5 has just come to hand.

I know of no home that has ever been established for the use of aged and indigent physicians except the Physicians' Home, Incorporated, an institution that was formerly operated in New York State. Dr. Robert T. Morris of New York City was the moving spirit in this enterprise, which, according to my information, suspended operations about three or four years ago. It is my understanding that it became necessary to discontinue the operation of the Physicians' Home, Incorporated, because of a lack of financial support and possibly because it became apparent that physicians who would ordinarily be the beneficiaries of philanthropy of this kind were rather generally opposed to the idea of becoming inmates of an institution. As to how much the latter factor had to do with the discontinuance of the Home, I am not informed, but I recall that I heard from some source that it had something to do with it.

You will not doubt recall that the suggestion was offered to the House of Delegates and to the Board of Trustees of the American Medical Association that the Association should provide and maintain a home for aged and indigent physicians. A committee, under the chairmanship of Doctor Simmons, made a rather exhaustive investigation of the subject and submitted a report to the House of Delegates recommending, in effect, that the suggestions be rejected. This report was approved by the House of Delegates, but a delegate from New York reopened the matter, and another committee, under the chairmanship of Dr. J. Norman Henry, made a study of the situation and brought in a report of an altogether similar nature, which also was approved by the House of Delegates.

Some constituent state medical associations, notably the Medical Society of the State of Pennsylvania, have established benevolence funds, which are used for the purpose of providing aid to aged and indigent physicians and to the dependents of deceased physicians. The fund of the Medical Society of the State of Pennsylvania, as I understand it, is administered by a committee of the Society, which distribute the funds in accordance with the judgment of its own members. The Philadelphia County Medical Society, according to my information, has a similar fund. It is my understanding that these funds are maintained principally by donations rather than by assessments on members.

I recall that when one of the committees appointed on authorization of our House of Delegates was engaged in its studies, one comment frequently received in reply to inquiries addressed to physicians throughout the country was that aged and retired physicians were very generally opposed to becoming inmates of any institution, but wished, rather, to be permitted to remain in the communities where they had been engaged in the practice of medicine. I recall that when I was secretary of a state medical association there were several aged and indigent physicians in the state whose inactive years were made thoroughly comfortable by the use of money donated by their old patients and by fellow physicians. I was intimately acquainted with one or two of the beneficiaries of this philanthropy and knew personally that their last years were not only made comfortable, but that they were made happy.

My own study of the general subject, which was made some years ago, convinced me that the maintenance of a

† The complete roster of the Committee on Public Relations is printed on page 2 of the front advertising section of each issue. Dr. Charles A. Dukes of Oakland is the chairman, and Dr. F. C. Warnshuis is the secretary. Component county societies and California Medical Association members are invited to present their problems to the committee. All communications should be sent to the director of the department, Dr. F. C. Warnshuis, Room 2004, Four Fifty Sutter Street, San Francisco.

home for aged and indigent physicians is not the answer to the problem.

With most cordial good wishes, I am

Very truly yours,

OLIN WEST.

* * *

December Obligations

1. Renew your license to practice by remitting your registration fee. It is $2 for 1936.
2. Renew your auto license. This year it is $3 plus $1.75 per $100 value placed on your car. Property tax is eliminated.
3. Pay your 1936 County and State Association dues. Your county secretary will appreciate your promptness.
4. Renew your membership in the medical society of the State of California. This membership assures you of legal protection at a cost of $10 per year.
5. Write for your hotel reservations for the 1936 annual session in Coronado. Over half of the rooms in Del Coronado Hotel have been reserved.

Start the new year right by attending to these essential details.

* * *

"Public Hospitalization"

RESOLUTIONS OF THE KERN COUNTY FARM BUREAU
PUBLISHED OCTOBER 16, 1935

WHEREAS, The rural people of California believe in the principle of public school education; and

WHEREAS, The principle of public hospitalization is just as valuable to our people as the public school system; and

WHEREAS, Kern County and San Joaquin County have operated a general hospital for the benefit of the taxpaying public; and

WHEREAS, Both of these counties are today accepting taxpayers as well as paupers as patients; therefore, be it

Resolved, That we, the Kern County Farm Bureau board of directors, endorse the principle of public hospitalization; and be it further

Resolved, That we ask each county Farm Bureau in California to endorse the principle of public hospitalization and so inform the California Farm Bureau Federation; and be it further

Resolved, That we, the Kern County Farm Bureau, recommend the principle of public hospitalization as used by both San Joaquin and Kern counties.

T. M. MARTIN,
Secretary, Kern County Farm Bureau.

This resolution is of interest in that it is probably the opening statement of a campaign that will conclude with the introduction of legislation in 1937. Sufficient comment has been made upon what has been the policy of the Kern County Hospital. It is also known that an injunction was obtained against this practice in the Kern County Hospital, but this has been suspended pending the outcome of an appeal. Similar proposals have been made in other counties without success. However, each county society should be alert to this situation and watch developments in their counties.

* * *

Library Service

The Lane and Barlow (Los Angeles County Medical Association) Medical Libraries provide members with splendid library reference services. These reference texts are available to every member in any part of the State.

To obtain these reference texts a member should go to the librarian of his local public library and request that the books or journals be sent for under the interlibrary exchange agreement. Material requested will then be sent to your local library. They can be retained for one week. In the same way, references may be secured from the Surgeon-General's library in Washington.

By writing to the Packet Library, American Medical Association, there will be sent to you references, journals, and reprints upon any subject you name. These may be retained for two weeks. A nominal charge of 25 cents, to cover postage, is the only expense.

These library facilities provide reference literature and texts for members desirous of remaining conversant with the latest developments as well as aiding him in research or the writing of papers.

THE WOMAN'S AUXILIARY TO THE CALIFORNIA MEDICAL ASSOCIATION†

MRS. THOMAS J. CLARK ..... President
MRS. ELMER BELT ..... Editor and Chairman of Publicity

County Auxiliary Reports

Alameda County.—The Woman's Auxiliary to the Alameda County Medical Association entertained their husbands at dinner on October 22 at the Claremont Country Club. Each table was beautifully decorated and arranged attractively. There was a splendid response to the invitation, as this has been an annual affair and is an event of outstanding importance in the year. The guests of honor were: Mrs. Thomas J. Clark, our State president; Doctor Clark, Dr. Frank Makinson, president of the County Medical Association; Mrs. Makinson, Dr. Gertrude Moore, secretary of the Alameda County Medical Association; Dr. Walter Dickie, executive secretary of the California Public Health Department, and Mrs. Dickie. A musical program was greatly enjoyed. Gyula Ormay's Hungarian Quartette wore authentic costumes of their native land and used an imported gypsy instrument, the czimbalom, in their playing.

Plans for the regular November meeting on the 15th are well under way. To promote interest and understanding in the sale of Christmas seals the program is concerned with the subject of tuberculosis. Dr. C. Bush will speak on *Tuberculosis, a Disappearing Disease.* Mrs. George Calvin will continue a series of talks given by various members of the Auxiliary on the history of medicine. Her subject will be *The Life of Koch.*

LAURA S. HENRY, *Publicity Chairman.*

* * *

Lassen-Plumas-Modoc Counties.—The Auxiliary to the Lassen-Plumas-Modoc County Medical Society held their final meeting for the year in Susanville on October 12. Mrs. G. R. Fortson and Mrs. G. E. Martin acted as hostesses for the afternoon. After a delicious luncheon, arranged by Mrs. Martin, the members and guests retired to the home of Mrs. Fortson. The meeting was then called to order by the president, Mrs. F. J. Davis, Sr. The Auxiliary was particularly honored in having as guests at this meeting, Mrs. Thomas J. Clark, the State Auxiliary president, and Mrs. Louis Dyke, a member of the Alameda County Auxiliary. A letter from the American Medical Association with plans and suggestions for increasing the circulation of *Hygeia* was read and discussed, and Mrs. C. Burnett was appointed *Hygeia* chairman for our counties by the president. Mrs. Burnett also agreed to act as health chairman in Susanville and to assist the school nurse in putting on health programs at the Parent-Teacher Association meetings.

Miss Peuh, the Susanville nurse, then gave a short and interesting talk on *How the Rural Nurse Meets Health Handicaps in Poor Children Where There Are No Clinics.* She discussed some of the major problems, such as tonsils, teeth, and immunization. Mrs. Thomas J. Clark gave a most interesting talk, discussing the National Handbook of the Auxiliary, *Hygeia,* and Public Relations. Mrs. Dyke of Oakland read the inaugural address of Mrs. Rogers N. Herbert given at the National Auxiliary convention at Atlantic City. At its conclusion the meeting adjourned.

MRS. FRED J. DAVIS, JR., *Secretary.*

† As county auxiliaries to the Woman's Auxiliary to the California Medical Association are formed, the names of their officers should be forwarded to Mrs. Elmer Belt, chairman of the Publicity and Publications Committee, 2200 Live Oak Drive, Los Angeles. Brief reports of county auxiliary meetings will be welcomed by Mrs. Belt and must be sent to her before publication takes place in this column. For lists of state and county officers, see advertising page 6. The Council of the California Medical Association has instructed the editor to allocate two pages in every issue for Woman's Auxiliary notes.

Los Angeles County.—"It is our aim to achieve a membership of one thousand," said Mrs. J. D. Barrow, Los Angeles County president, in her introductory remarks at the opening luncheon meeting of the Woman's Auxiliary held on October 22 at the Association building. Mrs. Barrow further outlined the work of the Auxiliary, which includes educational, social and legislative programs, also coöperation with the health programs of the Parent-Teacher Association. Mrs. Paul Quaintance, Health chairman for the tenth district of the Parent-Teacher Association, urged a widespread reading of *Hygeia* as the best way to keep health education before the public.

Dr. Harold D. Barnard, president of the Public Health League, sent as his representative, Dr. L. A. Alesen, who stressed the fact that scientific medicine owes its heritage and traditions to the individualistic efforts and that legislation is trying to rob it of this heritage by insinuating itself into the practice of medicine. He advocated more adequate standards to protect the public from exploitation and the enactment of a basic science law. "Be prepared to talk scientific medicine," was his concluding advice. Dr. Eric Larson reviewed the history of medical licensure, tracing its development from the early days in Rome when medical licenses were issued by the Pope and signed by the emperor, down to 1772, when the state boards of medical examiners were established in the United States. He then compared the educational standards of nonsectarian medicine with those of cultist medicine, and reported the unfavorable findings of the Canadian Commission which recently investigated the schools of osteopathy in the United States.

The Harbor Branch of the Los Angeles County Woman's Auxiliary held their regular monthly meeting in Long Beach on October 26, with Mrs. F. B. Settle, the chairman, presiding. The speaker of the evening was Miss Ann Schwennsen, executive chairman of Family Welfare, who discussed her work in the field of rehabilitation. Mrs. Settle reported ten new members.

MRS. HAROLD E. CROWE, *Corresponding Secretary.*

Orange County.—The Woman's Auxiliary to the Orange County Medical Association met at the Ebell Club House in Santa Ana Tuesday afternoon, November 5, for its annual public relations meeting. Mrs. Newell Moore, chairman of that committee, introduced the numerous guests, the representatives of the various women's organizations throughout the county. The prevention of juvenile delinquency was discussed by two prominent men, from two entirely different angles of the situation. Mr. Kenyon Scudder of the Los Angeles County probation office, described its prevention by the formation and the functioning of coördinating councils which he illustrated by an electrical transcription, "The Butch Baker's Gang." Dr. E. L. Russel of the Orange County Health Department and psychiatrist for the Orange County juvenile court, stressed the facts that over one-third of the juvenile offenders were retarded mentally and that the lower 25 per cent of society, with a large percentage of feeblemindedness, was producing 50 per cent of the next generation. He urged the enactment of laws that would give facilities for adequate eugenic sterilization. An interesting discussion followed.

Mrs. John Ball and her group of hostesses, comprising Besdames E. M. Beasley, Lawrence Cameron, J. I. Clark, Paul Esslinger, B. W. Hardy, G. W. Olson, M. K. Tedstrom, and Lawrence Whittaker, served tea from a table centered with colorful fruits suggestive of the Thanksgiving season. Mrs. Ray C. Green and Mrs. Harry Huffman poured.

JESSIE Q. RAITT, *Publicity Chairman.*

Sacramento County.—The regular meeting of the Woman's Auxiliary to the Sacramento Society for Medical Improvement was held at the home of Mrs. George Briggs on Tuesday evening, October 15, with the president, Mrs. F. N. Scatena presiding. The report of the treasurer that seventy-six members were paid up was accepted. It was moved and passed that $10 be donated to the Community Chest. It was decided that Mrs. Thomas J. Clark, the State president be invited to our December meeting. Mrs. Cress reported from the County Hospital Library Committee that the demand is greatest for adventure and popular science reading materials, and she asked for contributions especially of those types. A letter from the Women's Council was read asking us to join them and have a representative as a member of the council, and it was decided to do so.

The welfare director of the County Hospital called attention to a case there in need of educational help. It was moved that we have a committee to investigate the merits of the case and to plan to assist if possible. A new member, Mrs. Lucas Empey of Roseville, was introduced. Mrs. H. Kanner, accompanied by Mrs. Zue Geery Pease, sang "Beauty's Eyes" by Tosti and "Winter Lullaby" by De Koven. After the musical numbers the bridge tables were arranged, and when the playing was done the hostess, Mrs. George Briggs, assisted by Mesdames H. Hall, A. R. Boscoe, L. Lorenze, H. J. Davis, B. J. Rea, and Louis Jones, served delicious refreshments.

SARAH L. BRENDEL, *Corresponding Secretary.*

NEVADA STATE MEDICAL ASSOCIATION

R. O. SCHOFIELD, Boulder City.....President
C. E. SECOR, Elko.....President-Elect
HARRY W. SAWYER, Fallon.....First Vice-President
W. H. FROLICH, East Ely.....Second Vice-President
HORACE J. BROWN, Reno.....
.....Secretary-Treasurer and Associate Editor for Nevada

COMPONENT COUNTY MEDICAL SOCIETIES

CLARK COUNTY

The Clark County Medical Society held its first meeting of the fall on November 12 at the Sal Sagev Hotel, President R. D. Balcom presiding. The following members were present: Doctors Schofield, Woodbury, Mildren, Blinstrub, Garrison, Slavin, Balcom, McDaniels, Martin, and Van Meter.

The Society feels honored this year in that Doctor Schofield of Boulder City was elected president of the State Society for the ensuing year. Doctor Schofield is chief surgeon for the Big Six Company, Inc., builders of Boulder Dam.

After a brief business meeting, during which a tentative schedule of programs was arranged for the year, the Society had the pleasure of hearing a résumé of the more interesting papers presented at the annual College of Surgeons' meeting recently convened in San Francisco. Doctors Mildren, Woodbury, and Schofield gave brief but interesting discussions relative to some of the newer developments in surgery, and also described numerous instruments that are being used in the larger clinics. In particular, the peritoneoscope apparently produced the most interest and attention.

The Society will have its regular monthly meeting upon the second Tuesday of every month hereafter, and it has hopes of presenting several prominent physicians from our neighboring larger centers at those meetings.

HALE B. SLAVIN, *Secretary.*

No enterprise in the wide range of human experience can rank with training the mind. If, therefore, we have received from heaven nothing so good as the mind, what should be more worthy of exercise and cultivation? No other adventure is to be compared with it. Through it civilization and all man's higher achievements have been won. The report of a gun does not carry so far as the music of the lyre. To pursue intellectual ideals, unlike the privilege of galloping with a king in a royal game park, is a glorious adventure open to every man who cares to live richly and well.—Leon J. Richardson.

MISCELLANY

Under this department are ordinarily grouped: News Items; Letters; Special Articles; Twenty-five Years Ago column; California Board of Medical Examiners; and other columns as occasion may warrant. Items for the News column must be furnished by the fifteenth of the preceding month. For Book Reviews, see index on the front cover, under Miscellany.

NEWS

Coming Meetings

American Medical Association, Kansas City, Missouri, May 11-15, 1936. Olin West, M. D., 535 North Dearborn Street, Chicago, Illinois, Secretary.

California Medical Association, Coronado, May 25-28, 1936. Frederick C. Warnshuis, M. D., 450 Sutter Street, San Francisco, Secretary.

Western Surgical Association, Rochester, Minnesota, December 6-8, 1935. Albert H. Montgomery, M. D., 122 South Michigan Boulevard, Chicago, Secretary.

Medical Broadcasts*

The American Medical Association broadcasts over the blue network of the National Broadcasting Company at 5 p. m., eastern standard time (4 p. m. central standard time, 3 p. m., mountain time, 2 p. m. Pacific time), each Tuesday, presenting a dramatized program with incidental music under the general theme of "Medical Emergencies and How They Are Met." The title of the program is "Your Health." The program is recognizable by a musical salutation through which the voice of the announcer offers a toast: "Ladies and Gentlemen, Your Health!" The theme of the program is repeated each week in the opening announcement, which informs the listener that the same medical knowledge and the same doctors that are mobilized for the meeting of grave medical emergencies are available in every community, day and night, for the promotion of the health of the people. Each program will include a brief talk dealing with the central theme of the individual broadcast.

This program is broadcast also on the short waves through KDKA, Pittsburgh, over station W8XK, 11.870 and 12.210 kilocycles.

The December programs are as follows:

Tuesday, December 3—Subject, Tuberculosis—Dr. Morris Fishbein.
Tuesday, December 10—Subject, Hunting Accidents—Dr. Morris Fishbein.
Tuesday, December 17—Animal Diseases in Man—Dr. W. W. Bauer.
Tuesday, December 24—Subject, Eat, Drink and Be Merry, Dr. W. W. Bauer.
Tuesday, December 31—Pneumonia—Dr. W. W. Bauer.

San Francisco County Medical Society.—The radio broadcast program for the San Francisco County Medical Society for the month of December is as follows:

Tuesday, December 3—KYA, 6 p. m.
Tuesday, December 10—KYA, 6 p. m.
Tuesday, December 17—KYA, 6 p. m.
Tuesday, December 24—KYA, 6 p. m.
Tuesday, December 31—KYA, 6 p. m.

Los Angeles County Medical Association.—The radio broadcast program for the Los Angeles County Medical Association for the month of December is as follows:

Tuesday, December 3—KECA, 11:15 a. m. Subject: The Road to Health.
Saturday, December 7—KFI, 9 a. m. Subject: The Road to Health.
Saturday, December 7—KFAC, 10:15 a. m. Subject: Your Doctor and You.
Tuesday, December 10—KECA, 11:15 a. m. Subject: The Road to Health.
Saturday, December 14—KFI, 9 a. m. Subject: The Road to Health
Saturday, December 14—KFAC, 10:15 a. m. Subject: Your Doctor and You.
Tuesday, December 17—KECA, 11:15 a. m. Subject: The Road to Health.
Saturday, December 21—KFI, 9 a. m. Subject: The Road to Health.
Saturday, December 21—KFAC, 10:15 a. m. Subject: Your Doctor and You.
Tuesday, December 24—KECA, 11:15 a. m. Subject: The Road to Health.
Saturday, December 28—KFI, 9 a. m. Subject: The Road to Health.
Saturday, December 28—KFAC, 10:15 a. m. Subject: Your Doctor and You.
Tuesday, December 31—KECA, 11:15 a. m. Subject: The Road to Health.

* County societies giving medical broadcasts are requested to send information as soon as arranged (stating station, day, date and hour, and subject) to CALIFORNIA AND WESTERN MEDICINE, 450 Sutter Street, San Francisco, for inclusion in this column

Los Angeles County Hospital Postgraduate Courses. The Los Angeles County Hospital postgraduate courses for practicing physicians, announced in last month's issue (page 381) and conducted under the auspices of the Los Angeles Medical Department, University of California, were completed on November 22. Sixty-five licensed physicians availed themselves of the opportunity to take one or more of the five-day morning or afternoon courses, the number of each course being as follows:

COURSES	Number of Students
Internal medicine	10
Cardiology	5
Roentgenology	8
Obstetrics and gynecology	12
General surgery	7
Orthopedic surgery	5
Genito-urinary	12
Proctology	11
General review	6
Surgical anatomy	11
Operative surgery*	5
Total number of registrants in all courses	82

The figures based on residence show that fifty-four of the student-physicians were in active practice in California, and ten from other states, the classification by counties and states being as given below:

FROM CALIFORNIA	
Los Angeles County	37
Fresno County	4
San Diego County	6
Santa Barbara County	2
Riverside County	2
San Bernardino County	1
Alameda County	1
San Francisco County	2
	55
OUT OF STATE STUDENTS	
Nevada	3
Utah	2
Oregon	2
Idaho	2
Arizona	1
	10

The medical schools represented by class members who took the courses, with number of graduates accredited to each college, included the following institutions:

Name of College	Number of Students
University of California Medical School	3
University of Southern California School of Medicine	2
Stanford University School of Medicine	3
College of Medical Evangelists	12
Rush Medical College	1
Northwestern University Medical School	4
University of Illinois College of Medicine	2

* This course is given in the main building of the Los Angeles Medical Department and will continue for five weeks.

Chicago College of Medicine and Surgery	1
State University of Iowa College of Medicine	1
University of Kansas School of Medicine	1
Kansas City College of Medicine and Surgery	1
University of Louisville School of Medicine	1
Hospital College of Medicine, Louisville	1
Jefferson School of Medicine	2
Tulane University of Louisiana School of Medicine	2
Baltimore Medical College	1
Medico-Chirurgical College of Philadelphia	1
University of Michigan Medical School	1
University of Minnesota Medical School	2
Missouri Medical College	1
Washington University School of Medicine	1
Ensworth Medical College	1
St. Louis University School of Medicine	1
University of Nebraska College of Medicine	1
Creighton University School of Medicine	2
Columbia University College of Physicians and Surgeons	1
Long Island College of Medicine	1
Syracuse University College of Medicine	1
Starling Medical College	1
University of Cincinnati College of Medicine	3
University of Oregon Medical School	1
Hahnemann Medical College of Philadelphia	1
Vanderbilt University School of Medicine	1
University of Tennessee College of Medicine	1
Meharry Medical College	1
Medical College of Virginia	1
University of Wisconsin, College of Medicine	1
School of Surgery, Royal College of Surgeons in Ireland	1
Universitat Leipzig Medizinische Fakultat	1
Regia Università degli Studi di Modena (Italy Facoltà di Medicina e Chirurgia	1
	65

California Tuberculosis Association.—*Clearance*, official organ of the California Tuberculosis Association, recently suspended publication. Its sponsors sent out the following notice: Here Lies the Body of CLEARANCE. Born November, 1934. Died November, 1935.

Beloved son of Secretary William Ford Higby and the California Tuberculosis Association . . . Ushered into this life with bright expectations, this struggling infant died of pernicious anemia due to lack of gold and silver salts in his blood stream . . . After the birth of this fading memory, hundreds acclaimed his advent. He received fulsome praise, but few offered him the cup of hot milk in the form of a dollar bill or the sustaining nutriment of a bank check . . . He died, but may we not hope that his brief span of life brought certain moments of joy and inspiration to depression-smitten health and social welfare workers . . . Because this child failed to reach his majority, his parents feel the responsibility of meeting every obligation made in his name . . . Our records show that you are one of his few playmates who are entitled to a refund of the amount stated on the enclosed post-paid card . . . If this amount is correct, you may drop it in the post box and his grief-stricken parents will reimburse you from his funeral fund . . . (Signed) The Editor.

"Mercy Deaths."—The following item, typical of many others which appeared in the lay press, in connection with the supposed request of the young woman in Buffalo who begged that a physician take her life to relieve her of pain and distress, is reprinted because to our successors, twenty-five years from now, it may be of interest:

A solemn oath which millions of doctors have taken during the last 2,000 years should prevent "mercy slaying," a government physician said in discussing the plea of Miss Anna Becker, Buffalo, that "in the name of humanity a doctor take my life."

The oath of Hippocrates, which every medical student has to swear before he is graduated, includes the phrase: "If any shall ask of me a drug to produce death I will not give it, nor will I suggest such counsel."

The government physician, who declined to allow his name to be used, said that besides the oath, a doctor would be prevented from aiding the young Buffalo woman on legal, moral, and religious grounds.

He said that while Congress had acted on many things and had given Federal departments all sorts of authority, no act of Congress had authorized anyone to kill even "in the name of mercy." Even if such a law were passed, he explained that the oath of Hippocrates still would be a bar.

Other doctors said that power to kill would place a tremendous weapon in the hands of an unscrupulous physician. The burden of deciding whether a person was to be killed or not would be too "terrible" to place upon any human being, one oustanding physician said.

Federal Pure Food and Drugs Act.—Among items listed in an October press bulletin by the Federal Pure Food and Drugs Department, appeared the following:

"'Miss R. Regina,' who is also known as 'Regina Rieppel,' New York, was fined $40, of which $25 was remitted by the federal court at New York. She had been found, according to the allegations, to be conducting a mail-order business in herbs, prepared medicines of the 'old-country' type, books on diet and the home treatment of disease written by various alleged authorities, and religious tracts. Her products which ran afoul of the law were packaged shave grass and juniper berries. The shave grass, otherwise known as horsetail or equisetum, was labeled with extravagant claims translated from a treatise by a nineteenth century German clergyman, and mentioned prominently such morbid conditions as kidney and bladder-stones, hemorrhages, putrid wounds and gangrenous ulcers. The juniper berries were sold as a treatment for weak stomach, as an aid to the shave grass in the removal of stone and gravel from the kidneys, and for liver complaints. Their only physiological action is also that of a diuretic."

Poisoned Baking Soda.—Associated and other press agencies sent out from San Francisco some rather sensational articles during the third week of November, of which the clipping below is a specimen:

San Francisco, Nov. 21.—As police searched frantically tonight for a maniacal chemist with a mass-murder complex, the death toll of the poisoned bicarbonate of soda wave sweeping the city was brought to four, and twenty-three persons were reported desperately ill.

Three hours after taking a "dose of soda" George Purnaras, forty-five, a dishwasher, died in terrible agony. The soda he took, investigation showed, came from a different source than that causing three previous deaths in the poison peril.

Late today Dr. J. C. Geiger, city health officer, told police he believes two deadly poisons were put into bulk bicarbonate of soda sold to nearly one thousand families from a Mission district store.

Declaring he believed the poisons were placed in the soda with criminal intent, Doctor Geiger said:

"A maniac with expert knowledge of chemistry should be sought. It isn't reasonable to think that two poisons could have gotten into those soda barrels accidentally! I think someone who knew chemistry well is guilty, because the combination of the two poisons, arsenic and fluoride, made them very difficult to detect with quantitative tests. One poison helped obscure the other."

Meanwhile, word came from Los Angeles that a known anarchist involved in a Chicago poison case had been seen recently in Los Angeles and San Francisco.

With all San Francisco fearful and police and health authorities striving to "run down the fiend responsible for this poisoning," Joseph Rosenthal, proprietor of the store in which the soda was first sold to the public, and Nick Manno, head of the salvage firm which sold it to Rosenthal, appeared in Municipal Court to answer a pure food violation charge.

The case was put over until December 2, to await results of the coroner's inquest into the poisoned soda deaths.

The soda taken by Purnaras was, police were told, purchased from a wholesaler other than the firm to which the previous poisoned soda was traced.

Meanwhile, twenty other deaths under mysterious circumstances since the bulk baking soda involved was first sold are being investigated.

A later item shed additional light on the mystery:

San Francisco, Nov. 22 (AP).—Police officials tonight announced San Francisco's poisoned baking soda mystery, in which three lives already have been lost and twenty-three persons made seriously ill, was nearing complete solution.

The discovery that two barrels of salvaged baking soda in a local department store had been replenished, as sales were made, from a third barrel which contained a deadly poison rather than soda, was announced by Dr. J. C. Geiger, city health director.

Inspector George Engler declared an employee of the salvage firm that sold the soda to the store told him his employer had pointed at an unlabeled barrel, had then tasted its contents, and said:

"It tastes like soda; take it along."

Scientific Exhibit: Kansas City Session, American Medical Association.—The Scientific Exhibit at the Kansas City session of the American Medical Association will be held in the Municipal Auditorium in conjunction with the other activities of the Association, May 11-15, 1936. All applicants for space in the Scientific Exhibit must fill out the regular application blank.

The exhibit will cover a wide variety of subjects, including the basic medical sciences as well as the various specialties in medicine. The various sections of the Scientific Assembly have appointed section representatives, who will correlate the section exhibits, as far as possible, with the papers read at the section sessions.

Applications for the Scientific Exhibit close on January 27, 1936. Assignments of space will be made about February 24, 1936.

Further information may be obtained from Thomas G. Hull, director, Scientific Exhibit, 535 North Dearborn Street, Chicago.

The National Society for the Prevention of Blindness.—The annual conference of the National Society for the Prevention of Blindness was held at the headquarters of the Society in Rockefeller Center, New York, December 5 to 7, according to Lewis H. Carris, managing director. The topics discussed included: Medical Social Eye Work; The Prevention of Eye Accidents Caused by Fireworks; and The Division of Responsibility Between Official and Unofficial Agencies in the Movement for Prevention of Blindness.

Mr. Carris also reported the election of the following as honorary vice-presidents of the Society: Dr. George E. DeSchweinitz of Philadelphia, emeritus professor of ophthalmology in the Medical School, University of Pennsylvania; Dr. John H. Finley, associate editor of the New York *Times;* and Miss Lillian D. Wald, president of the Henry Street Settlement of New York City. Other honorary vice-presidents of the Society are: United States Senator Thomas P. Gore of Oklahoma; Helen Keller, and Mrs. Winifred Holt Mather.

Dr. Walter B. Lancaster of Boston, associate in ophthalmology, Harvard University Medical School, and Dr. Bernard Samuels of New York City, professor of clinical surgery, Cornell University Medical School, have been elected to the Society's board of directors.

Certified Milk Pasteurization.—Pasteurization of certified milk results in a product that averages less than 100 bacteria per cubic centimeter, according to Dr. M. J. Rosenau, president of the American Association of Medical Milk Commissions. In an address before the International Association of Milk Dealers in St. Louis on October 19, 1935, Doctor Rosenau stated that pasteurization of certified milk, which is now permitted, reduces bacteria virtually to the irreducible minimum and, furthermore, has no appreciable effect upon the unique nutritional values of this exceptional milk supply.

For more than forty-one years certified milk has been produced under the direct supervision of committees of the medical profession, and in accordance with uniform, national standards, revised annually by medical experts. Certified milk, according to Doctor Rosenau, has always been the leader among clean and safe milks, and now with the added advantage of pasteurization, it represents the last word in quality milk.

The importance of quality in all milk supplies was stressed by Doctor Rosenau, who urged a national campaign to promote greater consumption of quality milks, particularly certified.

"The quality of milk is not strained," he said, paraphrasing Shakespeare. "Quality is twice blest; it certifies him that sells and profits him that buys. Quality is the proudest prize of the producer and the surest comfort of the consumer. It is an attribute that glorifies business to a dignified, helpful and important public service. Quality is mighty for good and mightiest when good."

That, in his opinion, characterizes our modern certified milks, whether pasteurized or unpasteurized.

Epidemic Meningitis.—United States Public Health figures to September 28, 1935, report 4,543 cases of epidemic meningitis as against only 1,804 reported up to September 29, 1934. Although these statistics, pointing to an incidence two and one-half times greater in 1935 than in 1934, are not indicative of alarming epidemic, they nevertheless merit careful scrutiny, with eyes open to the potentialities of epidemic meningitis to become a grave community problem at times.

Popular Medical Lectures: Stanford University.—The Stanford University School of Medicine announces the fifty-fourth course of popular medical lectures for 1936. Illustrated lectures will be given in Lane Hall of the School of Medicine, Sacramento and Webster streets, San Francisco, on alternate Friday evenings at eight o'clock sharp. The schedule of lectures is as follows:

January 3—Sinusitis, Allergy and the Common Cold, Dr. Edward C. Sewall.

January 17—Public, Patient, Physician, and Health Insurance, Dr. T. Henshaw Kelly.

January 31—Superstitions, Facts and Theories of Menstruation, Dr. C. Frederic Fluhmann.

February 14—Success of Control of Communicable Diseases in San Francisco, Dr. George H. Becker.

February 28—Value and Limitations of Plastic Operative Procedures, Dr. Albert D. Davis.

March 13—Present Conceptions of the Nature of Mind, Dr. Thomas G. Inman.

Splendid If True: Pains of Dentistry to Be Eliminated!—Under the caption, *"New Pain Eliminator Evolved for Dentists,"* the following Associated Press dispatch of November 28 was given space in the lay press:

"A literal meaning may soon be given that ominous dental admonition to 'open wider, please; this isn't going to hurt—much.'

"Columbia University announced today discovery of a revolutionary and harmless pain-deadener by Dr. Leroy L. Hartman, professor dentistry in the School of Dental and Oral Surgery.

"Medical claims attached to the new desensitizer state that it is expected to revolutionize the practice of dentistry by eliminating pain and that 'drilly' feeling in the preparation and filling of tooth cavities.

"The new desensitizer, perfected by Doctor Hartman after twenty years of research, is described as a solution applied to the surface of the tooth, not only preventing pain but also offering the possibilities of saving teeth now doomed to be lost through extraction.

"Although full details were withheld, Doctor Hartman said the desensitizing solution is based on a new theory of pain and the recognition of a previously unknown substance in the dentin of the tooth.

"It becomes effective in about one and a half minutes after application. It remains effective from twenty minutes to an hour."

University Men to Attend Convention on Tropic Disease.—Clinical examination of a number of strange tropical and oriental diseases that threaten an invasion of this country, and a number of others, such as leprosy and yellow fever, which appear to be backing up before the advances of medical science, were considered at the thirty-first annual meeting of the American Society of Tropical Medicine in St. Louis, Missouri, November 20, 21, and 22. Several members of the staff of the University of California Medical School presented papers at the meeting.

The convention, which was held in conjunction with the American Academy of Tropical Medicine, recently formed, attracted the attention of transportation interests, exporters and importers, and other business and professional interests throughout the country. The keeping of the tropical and oriental trade and traffic routes closed to the entry of disease was the outstanding theme of the convention.

Dr. Alfred C. Reed, director of the Pacific Institute of Tropical Medicine, a part of the Hooper Foundation of the University, presented a paper on the teaching of tropical medicine in the United States, and led a discussion on the

intestinal protozoa of Arizona. Dr. Herbert G. Johnstone of the Institute staff, discussed "The Chemotherapy of Dirofilaria immitis." Studies of leprosy in Brazil were outlined by Dr. Hamilton H. Anderson and others.

"Glucose Tolerance in Rat Leprosy," a paper presented by Dr. George A. Emerson of the West Virginia University School of Medicine, was discussed by Dr. Chauncey D. Leake, professor of pharmacology in the University of California Medical School.

The Gorgas Memorial Laboratory at Panama, the London School of Hygiene and Tropical Medicine, London, England, the Rockefeller Foundations in Athens, Greece, and Rome, Italy, and a number of university medical schools were represented at the meeting.

Contamination of Domestic Water Supplies.—Studies made by the United States Bureau of Mines, Department of the Interior, in coöperation with the Kansas State Board of Health, have emphasized that the casing in producing oil wells must be kept in proper condition and abandoned wells must be plugged by methods suitable to the conditions in the individual wells and in the formations they have penetrated if fresh-water supplies and oil and gas resources are to be protected. Salient points pertaining to mineral contamination of fresh-water supplies through inadequate plugging methods or faulty casing have been presented in a brief and elementary discussion prepared by Ludwig Schmidt and C. J. Wilhelm, petroleum engineers of the Bureau of Mines. The authors of this informative pamphlet conclude that the abandoning and plugging of each well is a separate problem, but show that methods are available which, if used in accordance with good engineering practice, should reduce to a marked degree the mineral contamination of fresh-water supplies by subsurface brines.

Following prefatory statements regarding the composition of oil-field brines and their effect on animal and vegetable life, the sources from which waters high in mineral content enter fresh-water supplies are described. These are dealt with in two general classes, namely, subsurface and surface sources. Methods of plugging are discussed, and simple illustrations show types of improper plugs that allow depletion or mineral contamination of fresh-water sands. The booklet discusses the judicious use of mud fluids and cement and their limitations, and shows how faulty casing, either improperly seated or corroded, may permit brines to migrate to fresh-water or oil-producing horizons.

Copies of this booklet of fifteen pages and five illustrations are being distributed by the Kansas State Board of Health, Lawrence, Kansas, in accordance with a coöperative agreement with the Bureau of Mines pertaining to the disposal of oil-field brines.

LETTERS

Concerning health education by radio.

AMERICAN MEDICAL ASSOCIATION
BUREAU OF HEALTH AND PUBLIC INSTRUCTION

To the Editor:—A short time ago we announced in a special letter to local societies a new departure in health education by radio, namely, the dramatization of programs over a network of the National Broadcasting Company. At first it was not apparent that this would be broadcast farther west than Denver, but the program has actually been broadcast on a nation-wide network, including a short-wave broadcast over W8XK (Pittsburgh).

We asked that this program be announced in local bulletins and thus emphasized for the information of physicians.

As this is written, there have been five broadcasts and the audience mail response has been of such an enthusiastic character that we feel justified in asking you to make a special effort locally to get paragraphs about the program in newspaper columns by radio editors. . . .

It has been demonstrated that radio, itself an advertising medium, cannot stand alone but must be supplemented by other publicity media.

W. W. BAUER, M. D.

Concerning cyanide antidotes.

To the Editor:—The following is an excerpt from an article on "Cyanide Antidotes and Medical Progress" published in *The Journal of the American Medical Association* under date of November 2, 1935. Perhaps this may be of interest to you.

"Eventually J. C. Geiger, health official of San Francisco, acting on the recommendation of Hanzlik and Richardson, demonstrated the humanitarian value of this comparatively old, yet recent, discovery. (This refers to the use of methylene blue in cyanide poisoning.) This single clinical experiment has deservedly earned a widespread approbation. In one sweep it confirmed the value of controlled experimental procedure, saved human life, and marked progress in medical science. These striking events have moved so suddenly that their full significance for medicine cannot be measured yet. But it is already apparent that many investigations of oxidation-reduction dyes, of methemoglobin agents and processes, and of related problems, have been stimulated the world over. Apparently nothing need be too remote or unsuspected to illuminate the dim crossings and byways on the great highway of medical progress."

J. C. GEIGER, M. D., *Director.*

Office of Director of Public Health,
City and County of San Francisco.

Concerning a seventeenth-century comment on empiric practitioners.

October 14, 1935.

To the Editor:—The following excerpt, under the heading "Quacks: Yesterday, Today, and Forever," from the preface to a book printed in 1685, might interest the readers of CALIFORNIA AND WESTERN MEDICINE.

Very truly,
HYMAN MILLER, M. D.

1136 West Sixth Street, Los Angeles.

Quotation follows:

"But some will say, Why should you translate so Excellent a Book, and make it common to the Silly and Unlearned Quacks? My answer is, That 'tis come to that pass now, that their Numbers can hardly be increased by translating of Books, or any other means, and seeing this Nation is so unhappy, as to swarm with those Miscreants after such a rate, and no hopes of diminishing their Numbers, but by a new Act of Parliament (which God put into the Hearts of this Excellent, Loyal Wise Senate, that we are to be suddenly blessed with,) I judged it no small Act of Charity (seeing they are no way hindered to Practice) to inform them better, that thereby I might conduce to the saving of many lives, which by their Ignorance they would otherwise inevitably destroy. And now, that it comes to my Mind, I would have the World, but especially every good and charitable Member of the ensuing Parliament, take notice, that by a just and easy Computation, which I have often made, and am still ready to make, upon any good occasion, it is found, that all the Plagues that happen'd in England, have not destroyed as many, as the Quacks and Empyricks of this Nation. Let him therefore that would avert the Plague, if in his Power, by a stronger Reason endeavor to avert this greater Mischief; Which is in itself possible; in the mean time the best thing Physicians can do, will be to inform them what they can, to prevent (what in them lies) their destroying of the King's good Subjects; for seeing the Nation is topfull of them, that it cannot well be more stocked with them, that is (as I said before) the only Remedy left (in some measure) to prevent the Murthers. I had, to confess the plain truth, another Reason which induced me to translate this Book, and it was To get a little Money, which otherwise I could not do by my Profession, because of the Quacks; and to make my Market the better, I chose the best of Books, or I should have been no wise Trader, and had my Labour for my Pains, which I could not fear in translating so Excellent and Useful a Book. Which I have made somewhat the more so, by explaining at large all the Chymical and other difficult Characters contained therein, and by manifesting the Sense of many difficult places."

From "An Introduction to the Whole Practice of Physick—Shewing the Natures and Faculties of Medicines, the Reason and Manner of their Operations, and to what Particular Parts they are appropriated. Directing the more Unskilful in the true Method of Physick; according to the most successful Practice of several Modern Physicians in General and of the late Famous Dr.

Willis in Particular; being chiefly a Translation of the renowned WEDELIUS, a Publick Professor of Physick, and Physician to the Duke of Saxony, etc.

London, Printed for William Thackery at the Angel, and Thomas Yeate at the Bell in Duck-lane. MDCLXXXV.

Concerning the curious court decision referred to on pages 325 and 385 of the October issue.*

October 25, 1935.

Dear Doctor:

Your letter of October 22 with the enclosed clipping from the Los Angeles *Herald-Express* has been received. I must confess that the first sentence in the newspaper report gave me quite a shock; however, upon reflection several facts occurred to me: First, the newspaper article states that the case being reported arose in the Municipal Court in Los Angeles. The Municipal Court is the lowest court of record in Los Angeles. It exercises a jurisdiction comparable to that of justice of the peace in other counties. Therefore, whatever the municipal judge may have decided in the case reported, it is not binding as a precedent upon other courts through the State. Second, it seems apparent from the newspaper article that there must have been circumstances in the case reported which were not known to the reporter.

With respect to the statement in the article that: "A doctor who gives emergency treatment in a city in which there is no receiving hospital cannot collect a fee if the patient does not wish to pay. His services are presumed to be in the interests of humanity." I have no hesitancy in stating that, generally speaking, this is not the law. It has always been recognized in this country that where a physician renders services to a person injured by an accident rendering him unconscious or otherwise incapable of making a request for or expressing consent to the medical services, the law will imply a promise from him who received the benefit of the services to pay for them.

There are a few exceptions to this rule of law, the principal one being that if there is free ambulance service and free hospital treatment furnished by the municipality in which the accident takes place, and if immediate attention is not required, then a physician who performs services without a specific request cannot recover the value thereof (48 Corpus Juris, page 1158). However, the Municipal Court case reported in the clipping arose in Santa Monica, where there is no receiving hospital; therefore, the foregoing exception to the rule that there is an implied promise to pay for emergency treatment could have no application.

In your letter you asked me whether the California Medical Association could have the matter properly adjudicated in the interests of the medical profession. Of course, the answer to that question involves a matter of policy which is properly the function of the Council, rather than myself. However, in this particular instance I believe that the Los Angeles Municipal Court decision, if based upon the facts reported in the newspaper clipping, is erroneous and would not be followed by other courts in this State and that, therefore, there is no need at the present time for the California Medical Association to act. In any event, this particular case being in the Municipal Court, could not be taken beyond the Superior Court in Los Angeles, so that it would be impossible even if the case should be appealed to get a binding decision. This is so because practically all Superior Court decisions are not written. It is only the decisions of the District Courts of Appeal and the Supreme Court which are rendered in writing, and it is only those decisions which are written that may be used in the future as binding precedents.

I hope that I have been able to clear up the doubts created in your mind by the newspaper report which you sent me. If I may be of any assistance to you in the future, please feel free to call upon me.

Very truly yours,

(Signed) HARTLEY F. PEART.

* This letter, which follows, was written to a member of the California Medical Association by Mr. Hartley Peart, General Counsel of the California Medical Association, and was received after the November issue had gone to press.

Concerning treatment of Los Angeles County Relief Administration patients: Formerly treated in Los Angeles County Hospital; now to be treated in their homes.

LOS ANGELES COUNTY HOSPITAL

November 7, 1935.

Dear Doctor:

The enclosed letter received in my office today is self-explanatory.

The address of Dr. Louis Boonshaft, Medical Director of the Los Angeles County Relief Administration, is 741 South Flower Street, Los Angeles; his telephone number is Michigan 8111, Station 293.

Very truly yours,

P. BERMAN, M. D.,
Medical Director.

* * *

LOS ANGELES COUNTY HOSPITAL

November 7, 1935.

Mr. Norman R. Martin,
Executive Superintendent,
Los Angeles County General Hospital.

Attention: Dr. P. Berman, Los Angeles County Hospital. . . .

Dear Sir:

Under instructions from the Superintendent of Charities [County of Los Angeles], I have been working out, with the Medical Department of the Los Angeles County Relief Administration, the details of the transfer of all L. A. C. R. A. clients being furnished out-patient medical relief by the Department of Charities. This transfer will be effective on Tuesday, November 12, in that no new applicants known to the L. A. C. R. A. will be accepted by the Department of Charities for out-patient medical care at the Los Angeles County General Hospital or in the outlying districts under outside medical relief. As rapidly as possible, beginning on that date, all patients now receiving out-patient medical aid from the Department of Charities will be transferred to the Los Angeles County Relief Administration authority.

It has been mutually agreed by both the Los Angeles County Relief Administration and the [Los Angeles] Department of Charities that, in so far as possible, the patients will be assigned to the same doctors from whom they are now receiving treatment, provided these doctors are members of the L. A. C. R. A. panel. The medical director for the L. A. C. R. A. has agreed to include all members of our attending staffs who desire to become members of his panel.

It is, therefore, suggested that you direct a letter to the members of your attending staff [of the Los Angeles County Hospital], suggesting that they communicate with Doctor Boonshaft and make known to him their desire to take part in this work and have assigned to them certain patients now receiving medical care in the out-patient department of the Los Angeles County Genera! Hospital.

Very truly yours,

REX THOMSON,
Superintendent of Charities
[Los Angeles County]
By ARTHUR J. WILL (Signed)
Deputy Superintendent of Charities
[Los Angeles County]

Concerning article by Meyer and Eddie on sylvatic plague, printed in this issue on page 399.*

TREASURY DEPARTMENT
UNITED STATES PUBLIC HEALTH SERVICE

Bristol Vermont,
October 5, 1935.

To the Editor:—A few days ago I received the enclosed paper from Dr. K. F. Meyer with a request that I add my discussion and forward the same to you. His letter followed me across the continent and reached me

* See also letter in November issue, page 386, concerning a Special Committee on Selvatic Plague.

up here where I have had some delay in locating a typewriting machine.

The typing is my own work on a machine that did not space uniformly, but I hope it will be acceptable.

Very truly yours,

H. E. HASSELTINE,
Medical Director, United States Public Health States.

* * *

For the information of interested readers, the following references to articles on plague, printed in CALIFORNIA AND WESTERN MEDICINE are here printed:

Letter from Rupert Blue on subject of Bubonic Plague and Rat-Proofing Measures, Vol. 38, No. 6, page 473, (June) 1933.

Bubonic Plague Control in California in 1903, Rupert Blue, Vol. 40, No. 5, page 363, (May) 1934.

Selvatic Plague—Its Present Status in California, K. F. Meyer, Vol 40, No. 6, page 407, (June) 1934.

Bubonic Plague—Editorial, Vol. 40, No. 5, page 381, (May) 1934.

Bubonic Plague in California Rodents—Editorial, Vol. 40, No. 6, page 425, (June) 1934.

Plague, W. H. Kellogg, Vol. 41, No. 2, page 103, (August) 1934.

SPECIAL ARTICLES

C. M. A. QUESTIONNAIRES: TAX-SUPPORTED HOSPITALS AND MEDICAL SERVICES.*

(*Transmittal Letter of Explanation*)

CALIFORNIA MEDICAL ASSOCIATION COMMITTEE ON TAX-SUPPORTED HOSPITALS

October 24, 1935.

To County Presidents and Secretaries:

The House of Delegates of the California Medical Association adopted a resolution at the Yosemite meeting (1935) calling for "The study and investigation of conditions pertaining to tax-supported medicine and tax-supported hospitalization." The speaker of the House of Delegates appointed the following committee to undertake this task: A. E. Anderson, M. D., E. Earl Moody, M. D., and Louis A. Packard, M. D.

In order to obtain information to start this work, this committee is asking that the secretary of each society be responsible for this information, or that the officers of each society delegate to one man in whom they have confidence, and who is familiar with the situation, the work of aiding this committee. In addition to filling out these questionnaires and attending promptly to further correspondence, the committee may ask this appointee to be present at one or more conferences. It is requested that the secretary return the small slip enclosed before the date requested.

A survey of the work before the committee reveals an enormous task, and it also reveals the fact that it is extremely important at this time. Please return all blanks and address all communications in reference thereto to Dr. L. A. Packard, 1412 Seventeenth Street, Bakersfield, California.

The committee will appreciate the whole-hearted and prompt support of each component society.

Very truly yours,

L. A. PACKARD, *Secretary.*

* * *

I.—QUESTIONNAIRE ON COUNTY HOSPITALS

1. Number of private hospitals of all types in county.
2. Number of private approved ACS hospitals in county.
3. Number of beds in county hospital.
4. Number of beds in all private hospitals.
5. Number of beds in approved hospitals.
6. Approximate investment in county hospital.
7. Approximate investment in private hospitals.
8. Approximate investment in approved hospitals.
9. Amount of taxes paid by private hospitals in 1934.
10. What were the 1934 (1935 figures also if available):
Total admissions to county hospital (bed patients)?
Total admissions of indigents?
Total admissions of patients charged?
Total paid to county treasurer by hospital representing collections made in hospital?
11. What was the total number of clinic or out-patients?
Total expense out-patient clinic?
Charge, if any, to out-patients?
Drug charge, if any, to out-patients?
12. Has the county hospital a *Medical* Social Service on admissions:
(*A*) Bed patients?
(*B*) Out-patient clinic?
13. What is the basis for admission to county hospital?
14. Is Hellers or any other classification used?
15. What part does the Welfare Department play in the admission of patients?
16. Who controls admissions?†
17. Is there a County Welfare Department?
18. Does the Board of Supervisors or Welfare Department abuse their authority?

* * *

II.—QUESTIONNAIRE ON CITY, COUNTY, AND SCHOOL HEALTH DEPARTMENTS AND TAX-SUPPORTED EMERGENCY HOSPITALS

1. Is there a full-time county health officer?
2. Is there a part-time county health officer?
3. Is all public health work, including that done in the cities, under the administration of the county health officer?
4. Does the County Health Department conduct:
(*A*) Infant Welfare conferences?
(*B*) Maternal Welfare conferences?
(*C*) Venereal disease clinics?
(*D*) School health program?
(*E*) Treatment clinics?
5. What number attended during the last fiscal year:
(*A*) County Infant Welfare conference?
(*B*) County Maternal Welfare conferences?
(*C*) Venereal disease clinics?
(*D*) School treatment clinics?
(*E*) Other treatment clinics?
6. Is any social investigation made at above clinics?
7. Who conducts the social service investigation?
8. Is this investigation adequate?
9. Is any charge made at any of these clinics?
10. Is the County Health Department invading the field of the practice of medicine? Specify how.
11. What objections, if any, has the county society registered against the scope of work being carried on by the health department?
12. Has the County Health Department curtailed any of its work as a result of the action of the county society?
13. Do the major cities (give names) in the county have their own health departments?
14. Do these cities conduct:
(*A*) Infant Welfare conferences?
(*B*) Maternal Welfare conferences?
(*C*) Venereal disease clinics?
(*D*) School health programs?
(*E*) Other treatment clinics?
How many attended last fiscal year?
15. Do these clinics make social service investigations?
16. Is this investigation adequate?
17. Is any charge made for the health service?
18. Has the county society at any time registered objections against any of the activities of the City Health Departments?
19. Is there any reason for the county society to object to the scope of the activities of any of the City Health Departments?
20. Do school districts in your county conduct school health departments?
21. Do any such school health departments run treatment clinics?
22. Do such treatment clinics make any social investigation?
23. Is this investigation adequate?
24. Is any charge made at these clinics?
25. Has the county society ever registered objections against the activities of such school health departments?
26. Is there any reason for the county society to object to the actions and scope of such school health departments?
27. Are such school health departments in any way invading the field of the practice of medicine?
28. Give the number of the tax-supported emergency hospitals conducted in the county?

* See also editorial comment, on page 394.

† Please forward copy of blanks used in admitting patients.

29. Do these hospitals admit patients for medical and surgical conditions which are not strictly emergency?
30. Do these emergency hospitals make any charge for service?
31. Are these hospitals engaging in practice which is objectionable to the county society?
32. Do these emergency hospitals or other tax-supported institutions or departments of government employ resuscitation squads who administer oxygen in private homes and hospitals over long periods?
33. Is this service objectionable to the county society?
34. Are there any other tax-supported institutions in your county engaged in any work that comes within the category of medical practice?

* * *

III.—General Information

1. Population of county?
2. Where is county hospital located?
3. Is population dependent chiefly on industry or agriculture?
4. Number of physicians in county?
5. Number belonging to county society?
6. Is county hospital governed directly by Board of Supervisors?
7. Is county hospital governed directly or indirectly by an advisory board or other board?
8. Does harmony exist between the Board of Supervisors and the medical profession as represented by the county society?
9. Does the Board of Supervisors seek or accept advice from the medical society in relation to the county hospital?
10. Does the county hospital accept so-called "pay patients"?
11. Is there a sincere attempt made to admit only indigents?
12. Is a sincere attempt made to collect from pay patients?
13. Does the county hospital evade the pay issue by receiving "contributions"?
14. Are county hospital beds actually needed to care for population of county (other than indigents)?
15. Is the sentiment, if any, of the population in general in favor of the "open" or "closed" county hospital?
16. Has there been any attempt politically to make the county hospital open to all?
17. Has there been any attempt in the past two years to enlarge the county hospital beyond the capacity needed for indigents?
18. What lay organizations in the county are carrying on propaganda to open county hospitals to citizens who are not indigent?
19. Is there an apparent demand on the part of the people for legislation to open the county hospitals?
20. Is there a full-time medical superintendent or director?
21. Is there a full-time non-medical superintendent or director?
22. Is there a part-time medical superintendent or director?
23. Is there an organized staff?
24. Is the staff composed solely of members of the county society?
25. Do any of the staff receive salaries for full or part-time work?
26. Is the staff sufficient to care for the peak load of patients?
27. Is the hospital recognized for intern training?
28. How many training interns are employed?
29. Is the usual intern work cared for by residents who have completed their internship elsewhere? What salary?
30. Are all physicians of the county allowed to care for patients in the county hospital?
31. Are all physicians of the county allowed to care for patients either private or indigent?
32. Has the county society at any time objected to the manner in which members of the society have used the county hospital?
33. Have members of the county society at any time for any reason refused to do county hospital work?
34. Have any members of the county society aided the supervisors or politicians in furthering the cause of the open county hospital?
35. Does your society have a part-pay medical plan in coöperation with the county hospital?
36. Does the county hospital bring in any specialists (to augment the staff) from outside your county?
37. How is your crippled children problem handled?
38. Are the people in general satisfied with the county hospital service?
39. Is there any hospital insurance plan in operation in your county?

CORPORATIONS CANNOT PRACTICE MEDICINE IN CALIFORNIA

Opinion by Hon. C. J. Goodell, Judge in the Superior Court, in and for the City and County of San Francisco

Reference is made in this issue (on page 397) to the opinion rendered by Superior Court Judge Goodell of California. As there stated, it may well be read in conjunction with Justice Hughes' opinion, printed in last month's issue, on page 389.

In the Superior Court of the State of California, in and for the City and County of San Francisco

Department No. 16

No. 246,284

People of the State of California, *ex rel.* State Board of Medical Examiners, Plaintiff,

vs.

Pacific Health Corporation, Inc., Defendant.

Memorandum Opinion

This case, in my opinion, is ruled by *People* vs. *Merchants Protective Corporation,* 189 Cal. 531. There is not a single ground, so far as I can see, upon which it can be distinguished; nor any reason found in that opinion which cannot, with equal force, be urged with respect to the case at bar. Substitute "doctor" for "lawyer" or "attorney," and "patient" for "client," and you have the instant case. At page 539 it is said: "The attorney in such a case owes his first allegiance to his immediate employer, the corporation, and owes, at most, but an incidental, secondary and divided loyalty to the clientele of the corporation." The same is true of the doctor-corporation-patient-relationship here in question.

The law singles out members of the medical and legal professions and treats them differently from members of other professions. This is well instanced in the provisions of Sec. 1881, C. C. P., which codify, broadly speaking, the familiar rules of law respecting confidential communications. "There are particular relations," says that section, "in which it is the policy of the law to encourage confidence and to preserve it inviolate; therefore, a person cannot be examined as a witness," etc. etc. Then follow the privileged persons, and of all the learned professions (other than the ministry) the only ones so privileged are the medical and legal professions. Thus, as far as privilege goes, they are put on a par. It is the highly confidential relationship which seems to be the controlling factor.

People vs. *Merchants Protective Corporation* has been followed in several cases. In *People* vs. *Allied Architects Association,* 201 Cal. 428, the Supreme Court adopted the opinion of the trial judge, which distinguished the case of the architect from that of the lawyer. At page 432 there is found this language: "the essential element underlying the relation of attorney and client is that of trust and confidence of the highest degree, growing out of the employment and entering into the performance of every duty which the attorney owes the client in the course of his employment, and that the intervention of a corporation between the client whom it secures and the attorney whom it employs, even though the latter be duly licensed, prevents this relation of trust and confidence from arising. . . . Such a relation is *sui generis.* If a corporation could enter into this relation it might be, as the court points out, that those in control of its affairs would be without character, learning or standing, and the standards of the profession would thereby be degraded, to the great injury of the state."

In *People* vs. *California Protective Corporation,* 76 Cal. App. 354, 359, 360, the Merchants Protective Corporation case was followed. At page 360 it is said: "It thus appears that the attorneys retained and paid by the corporation are its agents and that their acts are its acts. It follows:. . . . that appellant was engaged in the practice of law." In *Whelan* vs. *Bailey,* 1 Cal. App. (2d) 334, 339, it is said: "It is well settled that a corporation may not practice law either directly or indirectly by hiring lawyers to practice on its behalf" (citing 189 Cal. 531, 76 Cal. App. 534, and 1932 Supp. Cal. Jur. 19). In the *Painless Parker* case, 216 Cal. 285, at 298, it is said: "That a corporation may not engage in the practice of the law, medicine or dentistry is a settled question in this State. None of those professions which involves a relationship of a personal as well as a professional character, which has to do with personal privacy, can be placed in the same category as druggists, architects or other vocations where no such relationship exists."

The analogy mentioned in the first paragraph of this memorandum finds support and approval in the *Painless*

Parker case, 216 Cal. 285, where, at page 297, Mr. Justice Seawell says: "To whom do the licensed dentists employed by the corporation owe their statutory duty, to Painless Parker or to the commercial institutions which pay them, or to the patient assigned them to serve? If they owed their first allegiance to their employer, the corporation, as was held in *People* vs. *Merchants Protective Corporation*, 189 Cal. 531 (209 Pac. 363), a case involving the duty of an attorney to his client, then they owed but a secondary and divided loyalty to the patient. This was denounced as not within the intendments of the law and practice."

The allegiance owed by a lawyer to his client is one kind of allegiance; that of a dentist to his patient another, and that of a physician or surgeon to his patient still another. Each obligation, in the very nature of things, is different in practice. The Supreme Court, however, invokes the analogy between dentistry and law, and the same may be said with respect to medicine.

In these three situations you have one factor common to all, namely, a commercial corporation—one organized for the purpose of making money for its stockholders—acting as the medium through which legal services, dental services or medical services are furnished to persons with whom it is in privity, by lawyers, dentists and physicians employed by the corporation. It makes no difference whether these professional men are salaried employees or get their compensation by way of a fee; whether they are called agents or independent contractors. The fact remains that they are subject to the orders of the corporation and its officers. It takes no great exercise of the imagination to picture any number of possible conflicts arising between a doctor and a general manager over the treatment of a member-patient.

The form of the application, and the certificates may differ in this case from the form of contracts entered into in the cited cases. However they may differ in language, the object sought to be attained in both cases is in substance and essence the same.

Alarm is expressed by counsel for defendant over the effect that a judgment for plaintiff in this case might have on a number of institutions which for years have existed in this State, and which seems to have had the approval, or at least not the disapproval, of the authorities or the State Board. Reference is made to hospital associations, to medical services furnished to members by fraternal organizations, and to industries and railroads where monthly hospital deductions are made. There is nothing in the record to show how any of these institutions operates, and so no fear is entertained by the writer that the decision of this case can have any influence whatever upon the conduct of these other enterprises. Each case must be decided upon its own facts. I am satisfied that there is no parallel between this and the other cases, as to which alarm is expressed.

It is unnecessary to discuss the authorities from outside this State. Many are cited by both sides, but I am satisfied that the California cases already discussed are controlling.

The plaintiff, in my opinion, is entitled to judgment as prayed.

C. J. GOODELL, *Judge*.

(Dated) October 15, 1935.

BLACK WIDOW SPIDER POISONING

Additional Discussion

Dr. K. F. Meyer, Director of the Hooper Foundation for Medical Research, University of California, was asked to discuss the paper on "Black Widow Spider Poisoning," printed on page 328 in the November issue of CALIFORNIA AND WESTERN MEDICINE. Owing to a serious illness, Doctor Meyer's discussion was written too late to be used in the November number, and is now printed as a special article:

The interesting and timely paper by Dr. Russell N. Gray recalls to the discusser a few reports on spider poisoning which he has seen during the past fifteen or twenty years.

Doctor Hameau probably was the first to describe, in the *Dublin Medical Journal*, Vol. 10, pp. 500-501, 1836, the symptoms produced by the bite of a spider (Epeira diademata): "A young girl gleaning in the fields was bitten above the left bosom by a large dark-colored spider. She felt a sharp pain in the part at the time. In a few minutes she became so weak that her limbs sunk under her, and her sufferings were so great that she rolled about on the ground and could not refrain from screaming out. Within an hour the doctor found her drenched with perspiration, her face alternately pale and flushed, her extremities cold, her breathing slow and oppressed, her pulse irregular and very small. She complained of severe pains in the feet, knees, thighs, and back; and as these subsided they fixed themselves in the epigastric region, causing a sense of most distressing oppression and anxiety. The muscles in several parts of the body were in a state of continual oscillation or tremor. Firm compression of the limbs afforded considerable relief to this symptom. The seat of the bite was red and swollen, and a small vesicle filled with a yellowish serum occupied its center. The symptoms were not relieved until three doses of opium had been administered."

Fatal intoxications caused by the so-called "black wolf," Lathrodectes tredecimguttatus, have been reported from Russia by Rossikow, Arb. Entomol. Bureau, Vol. 5, No. 2, 1904, Petersburg, Russia. In a series of 349 persons bitten by this spider, eleven died. On the other hand, Houssay (Arranas venenosas, Flaiban et Camilloni, p. 36, 1917) and Escomel, Bull. Soc. Path. Exot., Vol. 12, p. 700, 1919, who both describe severe symptoms of poisoning induced by Lathrodectes mactans, have never observed the death of a human being following a spider bite. The action of the poison is in part dependent on the location of the bite. The illness is more severe following a bite on the neck than on the foot.

The possibility of immunizing animals by injections of extracts prepared from whole Lathrodectes erebus was established as early as 1901 by Kobert. In fact, Schtscherbina (Arb. d. Entomolog. Bureau, Vol. 4, No. 4, 1903, in Russian) has immunized camels by repeated and progressively increasing doses of glycerinated-aqueous extracts of the cephalothorax dissected from the bodies of Lathrodectes malmignatus. At the end of one month the animal tolerated *thirteen* lethal doses of the extract. The serum neutralized the antigen *in vitro*, and it was successfully used therapeutically on poisoned animals, provided it was administered not later than ten to twenty hours after the introduction of the venom. In South America, Houssay and Brazil Vital (Mem. Inst. Butantan. 1925/26, and Brazil Med. 1925/26) have prepared and used specific anti-arachno toxins. More recently Becker and d'Amour in Denver (Proc. Soc. Exp. Biol. and Med., Vol. 32, p. 166, October, 1932), have shown the protective value of rat serum prepared by sublethal doses of less than one-fourth spider when tested intraperitoneally. In view of these observations it is indeed gratifying to note that the large scale preparation of a specific antivenin against the American black spider poison is being considered seriously.

THE ROCKEFELLER FOUNDATION

Programs and Policies

The Rockefeller Foundation expended $12,679,775 during the year 1934, according to its annual report, which his just been published. In commenting upon the activities of the year, Max Mason, president of the Foundation, said in part:

"The decisions reached during the year 1934 as to program in the immediate future bring increased emphasis on special fields, and on realistic research designed to meet definite and clearly recognized needs.

"The Foundation proposes to continue its traditional work in public health, studying, through its field and laboratory staffs, diseases and the control of diseases in their environments, and giving assistance to governmental activities and to the training of personnel.

"In the field of medical science the major interest will continue to be mental health, and support will be given for research and its applications, as well as for the training of personnel. A secondary interest will be the training of medical students in hygiene and public health. . . .

Public Health

Operating on a budget of $2,200,000 for public health activities, The Rockefeller Foundation in 1934 engaged in field research on yellow fever, malaria, hookworm disease, tuberculosis, undulant fever, yaws, and diphtheria; conducted yellow fever surveys and control campaigns; carried out projects in malaria control, supported numerous demonstrations of complete public health programs;

gave aid to the organization or maintenance of essential services of state and national health departments; and continued its contribution for the training of public health personnel through aid to schools and institutes of hygiene and public health as well as by support of a fellowship program.

As a general result of technical methods, developed in the laboratory, it has become evident that there are two endemic areas of yellow fever in the world. The boundaries of these areas have been approximately established. One of them occurs in Africa and extends from Senegal in West Africa to the upper reaches of the Nile. The other occurs in South America, and occupies practically the whole of the Amazon Valley, reaching for short distances into other watersheds.

It has come to be recognized that yellow fever may exist not only in a mild and almost unrecognizable form, but also in forms not associated with its recognized carrier, the stegomyia mosquito. The disease is transmitted and perpetuated in certain endemic areas by vectors different from the single one (stegomyia mosquito) encountered in Habana, Panama, and epidemic cities in general. Within these endemic areas, large parts of which are covered by jungle, there occurs a type of jungle yellow fever not carried by that mosquito and, therefore, offering to the scientific investigator new and as yet unsolved problems.

Medical Sciences

The total amount appropriated during the year for work in the medical sciences was $1,026,200. Aid of four types was given for the advancement of psychiatry: grants to universities and other institutions for the development of research and teaching in psychiatry and associated subjects; endowment and building funds for establishing psychiatric departments; research aid grants to individual workers engaged in important investigations in mental diseases; and fellowships to enable men and women especially qualified for work in this field to obtain desirable advanced training.

Grants for work in psychiatry were made to McGill University for research and teaching; to the Massachusetts Department of Mental Diseases for studies in psychiatry at the Boston State Hospital; to the Worcester State Hospital, Massachusetts, for research on dementia praecox; to the Johns Hopkins University, for the development of child psychiatry in the Pediatric Clinic; to the University of Leiden, for child psychiatry; to the Chicago Area Project, for the study, treatment, and prevention of juvenile delinquency within a few selected areas in Chicago; to the University of Rochester, for the Child-Guidance Clinic; to the National Committee for Mental Hygiene, toward support of its general expenses during 1935; to the University of Colorado, for the teaching of psychiatry in the Medical School; to the University of Michigan and the Institute of the Pennsylvania Hospital, for the development of teaching and research in psychiatry.

For work in neurology and related subjects, gifts were made to New York University, to Northwestern University Medical School, the University of Pennsylvania, the Walter and Eliza Hall Institute of Research in Pathology and Medicine, Melbourne, Australia; Dartmouth College, and the Lister Institute of Preventive Medicine, London.

Natural Sciences

In the field of the natural sciences, appropriations made during 1934 amounted to $1,051,210. The program called for specific concentration in the fields of experimental and physicochemical biology. . . .

Social Sciences

The social science program for 1934 involved appropriations amounting to $1,164,690. . . .

In addition to the program in the social sciences mentioned above, appropriations amounting to $525,500 were made in connection with emergency grants in support of (1) studies providing for concurrent recording and appraisal of procedures in important sections of the Federal Government's recovery, relief and reconstruction programs; and (2) undertakings providing collaboration on the part of private agencies with programs, new in type or scale, of federal, state, and local governments.

The Humanities

During 1934 the Foundation's appropriations in the field of the humanities totaled $749,500. The program of specific concentration confined itself to two fields of operation: the improvement of international understanding through cultural interchange, and the preservation and interpretation of American cultural traditions. . . .

Toward the preservation and interpretation of American cultural traditions the Foundation appropriated funds to the American Council of Learned Societies for its *Dictionary of American Biography*, and to the University of Chicago for the preparation of the *Historical Dictionary of American English*. The Library of Congress received an additional grant of $20,000 for the collection of photographic copies of source materials for American history from national archives and various European libraries. The Virginia Historical Society also received supplementary funds for the preparation of its *Virginia Historical Index*. In the field of dramatic art, grants were made to Yale University and the State University of Iowa. Studies in Hispanic-American culture were financed at the universities of Texas and New Mexico and additional funds were provided for interpretive studies of Indian art at the Laboratory of Anthropology, in Santa Fe.

PUBLIC EASY MARK NO. 1*

On Certain Collection(?) Agencies

By E. Jerome Ellison and Frank W. Brock

"Read before you sign—and keep a copy," is an important business slogan devised by Better Business Bureaus. This is predicated, of course, on a thorough understanding of *what you sign*.

If you have had an experience similar to any of those reported in the following article, please send me the details.—Edward L. Greene, General Manager, National Better Business Bureau, Inc., 135 East Forty-second Street, New York City.

* * *

From Bad Debts to Worse.—The stalwart American business man, traditionally a "pillar of society," is also the principal supporting member of a national structure of rackets. To the sharping underworld, he is Public Easy Mark No. 1. The three rackets extracting the greatest sums from business men are the Collection, Credit and Customer rackets, which often operate "within the law."

When one of the glib salesmen for an "Account Purchasing Company" offers ready cash and freedom from collection worries to a business man who has a large accumulation of accounts receivable, the groundwork of the collection racket is being laid. When the creditor signs the salesman's contract, the grip of the racket has tightened. And several months later, when the "collection agency" submits its statement, the creditor will realize for the first time that he is trapped—that instead of receiving any cash, he *owes* it. And the agency is adhering strictly to the terms of the contract their creditor victim signed.

* * *

The Clause with the Claws.—We must look to the contract, then, for the "catch." In the first place, the victim is not always aware that he is signing a contract at all—he is often asked to sign merely an "application" or a "listing sheet." Even when he does sign a contract as such, the catch phrases are so artfully worded, typographically obscure and veneered over by the patter of the salesman, that he might easily skim through it without finding anything amiss. As an example there's one contract trick that is currently very much in vogue. Suppose you turn over 100 past-due accounts to an agency for collection. Then suppose the agency collects a debt of $50 due you. You will receive this statement:

One hundred service charges at 60 cents	$60.00
Less collections received by us	50.00
Balance Due Us	$10.00

* From the Reader's Digest. Chapter 13 of the book, "The Run for Your Money," copyright 1935 by E. Jerome Ellison and Frank W. Brock. Reprinted here by permission.

This statement has a perfectly legal basis in the contract you have signed. One obscure clause reads: "Initial overhead expense of 60 cents per account [which means, despite verbal representations of the salesman to the contrary, that you owe the "agency" 60 cents for every account you turn over to them, whether they collect anything on it or not] will be advanced by the company and applied against any amount that is due the creditor" [on accounts collected]. That is just one of the contract ruses that make it possible for the gyp collection agencies to keep for themselves anything they collect on your behalf.

* * *

Court Costs.—Not all the collection schemes are based on an elaborate system of contract tricks. A group of Chicago swindlers mulcted hundreds of creditors by assessing them for "fees for legal action against debtors." Dozens of salesmen, most of them entirely innocent of the scheme, were secured through the help-wanted columns. They were sent out to solicit the collection of accounts for business and professional men. These accounts were turned over to a crew of high-pressure salesmen whose function it was to tell creditors that the debts could be collected easily and quickly by taking the case to court. Purely imaginary statements were made regarding the bank accounts, assets, responsible positions and property possessed by the debtor, as a basis for the argument that suit should be brought immediately. Creditors fell into that trap by the hundreds. Employees of the concern have stated that at least $2,000 a day came in from these calls. After deducting the small overhead, every dollar of it went into the pockets of the sharpers. No lawsuits were ever started.

Whenever a racketeer concocts a workable new scheme, imitators spring up. This scheme was no exception. One of the imitators, however, was neatly tripped up by a physician who had previously read Better Business Bureau publicity on the racket. He gave the alleged agency two fictitious accounts to collect. When the racketeers asked him for "court costs" to recover some money that was not owed from debtors who did not exist, the doctor had an airtight case, which he promptly turned over to the police. . . .

DINITROPHENOL ON LIVER FUNCTION

Additional Discussion

An article having the above caption appeared on page 337 of the November issue. The closing discussion was received too late to be incorporated with the main article, and is now printed in this department:

M. L. Tainter, M. D. (Closing).—Because of the citation in the discussion of a paper by Perkins, it should be pointed out that this article presented no new data and only attempted to summarize the French literature on this question. Reference to the original articles from France and elsewhere, including the extensive monographs prepared under the direction of the French Government, fails to establish a basis for concluding that dinitrophenol demonstrably damaged the liver in the war experience, unless it were in the cases of overwhelming acute poisoning where extreme hyperpyrexia was already present. In fact, Perkins in one place even states: "Perhaps the most interesting feature of the postmortem examination is that there are no lesions to be found which are in any way characteristic. . . . The microscopic lesions in the liver and kidney cells are inconstant, nor are there anywhere else any typical changes." It is also significant as to the lack of serious organic damage from dinitrophenol when these same monograph authors reported that, with nonfatal cases of poisoning, a few days of rest brought about a relief of all symptoms so that the men could return to their work.

I do not believe that any disparagement of laboratory experimental studies is justified. A discrepancy between clinical claims and experimental results does not argue against the validity of the experimental results. For one thing, experimental results can be, and usually are, carefully controlled and exhaustively analyzed in a manner impossible with the clinical case. It might be pointed out that, in the cases of cinchophen and alcoholic cirrhosis cited, informed clinical opinion has had to be considerably modfiied under the impact of careful and critical experimental work.

It would seem desirable, from the clinical standpoint, to differentiate a case of true icterus from one in which the jaundiced color was due to the presence of the yellow dinitrophenol in the serum; since, in the first case, liver damage would be indicated, whereas in the second case there would be no implication of a pathologic process. It is difficult to understand how the kidney-function dye, phenolsulphonephthalein (phenol red), can be used to determine a toxic effect of dinitrophenol on the liver cells. We are familiar, of course, with reports of cataract formation in patients previously treated with dinitrophenol. So far, the published evidence on this subject has consisted solely of clinical opinion of the *post hoc ergo propter hoc* type. The present paper contains no observations bearing on this problem, so that until definite data does become available, no conclusions as to the rôle of dinitrophenol in the production of these cataracts should be, or can be, drawn.

ON USE OF WORD "PHYSICIAN"

Ruling of Presiding Judge Hartley Shaw of the Appellate Court of California in a Recent Chiropractor Appeal

In the Appellate Department of the Superior Court,
County of Los Angeles, State of California
Superior Court No. CR A 1241
Trial Court No. 63521

People of the State of California,
Plaintiff and Respondent,
vs.
Richard W. Curtiss, et al.,
Defendants,
Richard W. Curtiss,
Defendant and Appellant.

Appeal from the judgment of the Municipal Court of the city of Los Angeles, county of Los Angeles.

Arthur Crum, *Judge.*

Memorandum Opinion

Section 15 of the Chiropractic Act (Deering's General Laws Act 4811), which defendant is charged with violating, provides that "any licensee under this Act who uses the word 'doctor' or the prefix 'Dr.' without the word 'chiropractor,' or 'D. C.' immediately following his name, or the use of the letters 'M. D.' or the words 'doctor of medicine,' or the term 'surgeon,' or the term 'physician,' or the word 'osteopath,' or the letters 'D. O.' or any other letters, prefixes or suffixes, the use of which would indicate that he or she was practicing a profession for which he held no license from the State of California . . . shall be guilty of a misdemeanor."

Both the complaint and the evidence show a violation of this provision by the defendant. He was licensed under the Chiropractic Act and under no other Act. He used a sign reading as follows:

"Dr. Richard W. Curtiss
Dr. Cecil E. Bowlby
Naturopathic Physician and Chiropractors
General Drugless Practice."

The Act above quoted forbids the use by licensed chiropractors of the term "physician." Several terms are included in this same prohibition, all of which would commonly be understood to designate persons who had licenses other than chiropractic, and they are followed by the general words "or any other letters, prefixes or suffixes, the use of which would indicate that he or she was practicing a profession for which he had no license from the State of California." We think the prohibition of the use of certain specified terms, immediately preceding the words just quoted, is complete in itself, and is not modified or qualified by any part of the clause quoted. Hence the use of the word "physician" and the others specifically enumerated, is unconditionally forbidden to those who have only a chiropractic license. This prohibition cannot be evaded or defeated by attaching qualifying or explanatory words to those whose use is forbidden. The use of the word "physician" by defendant, even though qualified by the word "naturopathic," was a violation of the statute.

These conclusions render it unnecessary for us to discuss the other points made, particularly the precise meaning of the word "naturopathic," and the claimed nonexistence of any statute requiring naturopaths to be licensed.

The judgment is affirmed.

Hartley Shaw, *Presiding Judge.*

(Dated) November 4, 1935.

I concur.

W. Turney Fox, *Judge.*

TWENTY-FIVE YEARS AGO†

EXCERPTS FROM OUR STATE MEDICAL JOURNAL

Vol. VIII, No. 12, December, 1910

From Some Editorial Notes:

Eighth Volume.—With this, the December issue, the eighth volume of your *Journal* is completed. When we began publishing, there were many of our members who had grave doubts that even the first volume would be completed; but we are still here, and the *Journal* will probably continue to be issued long after the original doubts or the early struggles have been quite forgotten. If you would see the *Journal* continue to grow and to improve as it ought to improve, then help to bring about that result. The *Journal* is almost entirely just what the members of the Society make it. If they write better papers, if they contribute good suggestions, valuable case reports, scientific reviews or editorials of value, by just that much do they improve their own *Journal*. There are a few (fortunately only a very, very few), captious critics who find little if anything in the *Journal* to meet their approval. But they do not count; they seldom approve anything very much, unless it is their own work or something with which they have had to do. . . .

* * *

The Next Legislature.—In January the legislature will begin its sessions and we should carefully consider some things in advance of that event. There always have been those who wish to break down the slight protection afforded the public by any sort of a decent medical law, and there doubtless always will be such; therefore we may expect that bills will be introduced either creating a new medical law or emasculating the present one. Also, there may be attempts to create special licensing boards; similar bills have been introduced at every session. If it has not already been done, each and every man who has been elected to the legislature should have this matter carefully and fully explained to him before he goes to Sacramento; after he gets there the pressure of work makes it almost impossible for one to devote a great deal of time to the consideration of these questions. . . .

* * *

A Medical Clearing House.—That is what we are trying to make the office of the State Society—a medical clearing house. A place where all the various lines of medical interest and activity in California will center. . . . Coöperation is the essential spirit of the twentieth century. Coöperate right here at home and thus, incidentally, do yourself some good; you never can tell when *you* may want a little coöperation. Help us to make the office of the Society useful in the way suggested and you will find, some day, that you have helped make for yourself a very useful institution. . . .

* * *

The Functions of the County Medical Society.—Many of its members look upon the preparation and presentation of an adequate scientific program as the sole function of the county society. Such a view is shortsighted in the extreme. The functions of the Society are many, and arise from (1) the relations of its members one to the other, or (2) the relation of its members to the community. From the first set of relations arise the functions that arrange for exchange of experience, information, and clinical programs, and lay down rules for courteous and fair relationship between members in ethical codes, and means for enforcing the codes by committees of ethics.

A much neglected but essential function that also arises from this relationship of members, one to the

† This column strives to mirror the work and aims of colleagues who bore the brunt of Association work some twenty-five years ago. It is hoped that such presentation will be of interest to both old and new members.

(Continued in Front Advertising Section, Page 12)

BOARD OF MEDICAL EXAMINERS OF THE STATE OF CALIFORNIA†

By Charles B. Pinkham, M.D.
Secretary-Treasurer

News

"Use of the word 'physician' by chiropractors, even though the term is qualified or explained, is forbidden, the Appellate Department of the Superior Court held yesterday. The appellant was Richard W. Curtis, who was said to have used a sign identifying himself as a naturopathic physician." (Los Angeles *Times*, November 6, 1935.)

"An opinion that there is no legal authority for the collection of money from patients receiving treatment in the Shasta County Hospital was rendered by Superior Judge Albert F. Ross Wednesday in a ruling on an objection by defense counsel in the personal injury suit of Leon St. Vrain against J. P. Christensen. . . ." (Redding *Searchlight*, October 17, 1935.)

"The United States Supreme Court got down to the business of making history in its new Chamber of Justice today. . . . The court refused to consider the one-million-dollar suit of the United States Naturopathic Association, Ltd., versus the Chiropractic League of California, California Attorney-General U. S. Webb, and the State Board of Chiropractic Examiners. The naturopathic healers contended, in a suit against the chiropractic group, that the latter had conspired to bar them from the practice of their profession in California. They sought an injunction against enforcement of the Medical Practice Act, as it has been interpreted by the local officials. The Federal District Court in Los Angeles dismissed the suit on petition of the defendants and an appeal was carried directly to the Supreme Court. . . ." (Press dispatch, dated Washington, D. C., October 14, and printed in the San Francisco *News*, October 14, 1935.)

"The State College of Chiropractic and Naturopathic Physicians at 85 East San Antonio Street is now operating with the Standard Chiropractic College at the same address. The latter college has the power to grant degrees. . . . The principal office of the Standard College is in San Jose, and a branch school, known as the San Francisco Unit, will be operated at 1145 Polk Street, San Francisco. . . . The above action is the result of the State College having had some difficulty regarding the question of granting degrees last July." (San Jose *News*, October 18, 1935.)

"The merger of the Columbia College of Chiropractic and Naturopathy of this city and the Standard College of Chiropractic of San Jose and the San Francisco unit of the college has been announced. The college will be known as the Standard Chiropractic College, Sacramento Unit. . . ." (Sacramento *Bee*, October 21, 1935.)

"A new trial was granted today by the District Court of Appeal to Dr. William J. Jacobs, Santa Barbara physician, sentenced to life imprisonment for the fatal shooting of Mrs. Lillian Newlon on a Santa Barbara street last November 7. The court ruled that the jury which adjudged Doctor Jacobs sane was not correctly instructed as to the law. Doctor Jacobs was also charged with wounding Miss Adeline Flint." (San Francisco *Examiner*, November 5, 1935.) (Previous entries, December, 1934; April, 1935.)

† The office addresses of the California State Board of Medical Examiners are printed in the roster on advertising page 6.

(Continued in Front Advertising Section, Page 20)

C. M. A. MEMBERSHIP ROSTER
SEPTEMBER, 1935

KEY NUMBERS FOR COUNTY MEDICAL SOCIETIES

1. Alameda County.
2. Butte County.
3. Contra Costa County.
4. Fresno County.
5. Humboldt County.
6. Imperial County.
7. Kern County.
8. Kings County.
9. Lassen-Plumas-Modoc County.
10. Los Angeles County.
11. Marin County.
12. Mendocino-Lake County.
13. Merced County.
14. Monterey County.
15. Napa County.
16. Orange County.
17. Placer (El Dorado, Nevada, Sierra) County.
18. Riverside County.
19. Sacramento County.
20. San Benito County.
21. San Bernardino County.
22. San Diego County.
23. San Francisco County.
24. San Joaquin County.
25. San Luis Obispo County.
26. San Mateo County.
27. Santa Barbara County.
28. Santa Clara County.
29. Santa Cruz County.
30. Shasta County.
31. Siskiyou County.
32. Solano County.
33. Sonoma County.
34. Stanislaus County.
35. Tehama County.
36. Tulare County.
37. Ventura County.
38. Yolo-Colusa-Glenn County.
39. Yuba-Sutter County.

COUNTY SOCIETY MEMBERSHIP TOTALS
(Year 1934)

Alameda County	473
Butte County	18
Contra Costa County	43
Fresno County	113
Humboldt County	31
Imperial County	23
Kern County	48
Kings County	18
Lassen-Plumas-Modoc County	10
Los Angeles County	2,000
Marin County	33
Mendocino-Lake County	20
Merced County	24
Monterey County	46
Napa County	27
Orange County	107
Placer County	29
Riverside County	60
Sacramento County	132
San Benito County	5
San Bernardino County	119
San Diego County	227
San Francisco County	775
San Joaquin County	86
San Luis Obispo County	25
San Mateo County	49
Santa Barbara County	99
Santa Clara County	168
Santa Cruz County	30
Shasta County	11
Siskiyou County	20
Solano County	23
Sonoma County	47
Stanislaus County	38
Tehama County	12
Tulare County	37
Ventura County	32
Yolo-Colusa-Glenn County	25
Yuba-Sutter County	11
Active members	5,094
Associate members	6
Retired members	57
Honorary members	12
Total members	5,169

Seventy-six members died during the year 1934.

Editor's Note.—The California Medical Association by-laws provide for an annual directory. Because every member receives the annual directory of the Board of Medical Examiners of the State of California, and in order to avoid the great cost of duplication of such a directory, the California Medical Association Council has decided to print in the official journal a simple roster of members, giving for each member the city or place of residence, with a key number to indicate the county medical society in which membership is held. For additional information concerning school of graduation, etc., the State Medical Board directory or the central office of the California Medical Association should be consulted. Errors in the list here printed should be promptly reported to the central office of the California Medical Association, Four Fifty Sutter, San Francisco.

I. ACTIVE MEMBERS

— A —

NAME	CITY	COUNTY SOCIETY NO.
Abbott, C. L.,	*Oakland*	1
Abbott, C. N.,	*Ontario*	21
Abbott, D. H.,	*Ukiah*	16
Abbott, F. F.,	*Ontario*	21
Abbott, G. K.,	*Ukiah*	12
Abbott, L. C.,	*San Francisco*	23
Abbott, U. S.,	*Richmond*	3
Adun-Nur, A. S.,	*Los Angeles*	10
Abowitz, J.,	*Los Angeles*	10
Abraham, H.,	*Los Angeles*	10
Abraham, S. V.,	*Los Angeles*	10
Abraham, V. R.,	*Long Beach*	10
Achenbach, L. W.,	*Ventura*	37
Adams, B. A.,	*San Leandro*	1
Adams, B. O.,	*Riverside*	18
Adams, B. W.,	*Oakland*	1
Adams, E. L.,	*Galt*	19
Adams, H. G.,	*Fresno*	4
Adams, J. H.,	*Oakland*	1
Adams, L. P.,	*Oakland*	1
Adams, W. C.,	*Oakland*	1
Adams, W. L.,	*Fresno*	4
Adler, H. M.,	*Berkeley*	1
Agmar, A. R.,	*San Francisco*	23
Ahlem, J. E.,	*Livermore*	1
Ahrens, C. L.,	*Artesia*	10
Aiken, S. D.,	*San Francisco*	22
Ainley, F. C.,	*Los Angeles*	10
Aird, J. L.,	*Manhattan Beach*	10
Aitken, H. C.,	*Berkeley*	1
Akesson, H. N.,	*Oakland*	1
Alanson, M. R.,	*San Francisco*	23
Albert, J. A.,	*Oroville*	34
Albert, W.,	*Los Angeles*	10
Alberty, W. M.,	*East San Diego*	22
Albi, P.,	*San Francisco*	23
Alcazar, I.,	*Los Angeles*	10
Alcon, D. N.,	*Los Angeles*	10
Alden, B. F.,	*San Francisco*	23
Alden, E.,	*Los Angeles*	10
Alden, W. C.,	*Los Angeles*	10
Alderson, H. E.,	*San Francisco*	23
Alderson, V. G.,	*Oakland*	1
Aldrich, W. S.,	*Los Angeles*	10
Alesen, L. A.,	*Los Angeles*	10
Alexander, A. A.,	*Oakland*	1
Alexander, E.,	*Oakdale*	34
Alexander, E. W.,	*San Francisco*	23
Allan, J. T. M.,	*Los Angeles*	10
Allen, A.,	*San Pedro*	10
Allen, A. B.,	*Los Angeles*	10
Allen, C. L.,	*Los Angeles*	10
Allen, C. S.,	*Los Angeles*	10
Allen, D. M.,	*Oakland*	1
Allen, E. G.,	*Patterson*	34
Allen, H. W.,	*San Francisco*	23
Allen, J.,	*Raymond*	4
Allen, J. R.,	*Los Angeles*	10
Allen, M. R.,	*Fairfax*	11
Allen, O. K.,	*San Francisco*	23
Allen, P. K.,	*San Diego*	22
Allen, R. E.,	*Reedley*	4
Allen, R. W.,	*Huntington Park*	10
Allen, W. B.,	*Oakland*	1
Aller, D. I.,	*Fresno*	4
Allington, H. V.,	*Oakland*	1
Allum, A. W.,	*Glendale*	10
Alsberge, E. W.,	*Glendale*	10
Alter, S. M.,	*Los Angeles*	10
Althausen, T. L.,	*San Francisco*	23
Alvarez, L. F.,	*Los Angeles*	10
Alward, H. C.,	*Los Angeles*	10
Amaral, E. A.,	*San Jose*	28
Ames, E. W.,	*Los Angeles*	10
Ammann, F. X., Jr.,	*Los Angeles*	10
Amsbaugh, A. E.,	*San Francisco*	23
Amyes, H. W.,	*Huntington Park*	10
Anderson, A. C.,	*Petaluma*	33
Anderson, A. E.,	*Fresno*	4
Anderson, A. V.,	*Pasadena*	10
Anderson, B. N.,	*Burbank*	10
Anderson, C. M.,	*Hermosa Beach*	10
Anderson, E. DeM.,	*San Luis Obispo*	25
Anderson, E. F.,	*San Francisco*	22
Anderson, F. N.,	*Los Angeles*	10
Anderson, F. R.,	*Campbell*	28
Anderson, H., Jr.,	*Los Angeles*	10
Anderson, H. C.,	*Pomona*	10
Anderson, H. E.,	*Culver City*	10
Anderson, H. H.,	*San Francisco*	23
Anderson, J. F.,	*Los Angeles*	10
Anderson, J. G.,	*Petaluma*	33
Anderson, N. P.,	*Los Angeles*	10
Anderson, O.,	*Santa Monica*	10
Anderson, S. C.,	*Sawtelle*	10
Anderton, H. S.,	*San Diego*	22
Andre, E. M.,	*Los Angeles*	10
Andrews, C. B.,	*Sonoma*	33
Andrews, H. F.,	*San Diego*	22
Andrews, H. J.,	*Hollywood*	10
Andrews, J. N.,	*Los Angeles*	10
Andrews, V. L.,	*Los Angeles*	10
Andrews, W. A.,	*Yucaipa*	21
Andrus, L. M.,	*King City*	14
Ankele, C. W.,	*Sacramento*	19
Annis, A. J.,	*Los Angeles*	10
Anton, F. L.,	*Los Angeles*	10
Appeldorn, H. H.,	*Oakland*	1
Apple, W. W.,	*El Centro*	6
Arbuthnot, R. E.,	*Glendale*	10
Arehart, A. A.,	*Monterey*	14
Arkush, A. S.,	*Santa Monica*	10
Armen, G. H.,	*Los Angeles*	10
Armitstead, R. B.,	*Ventura*	37
Armstrong, E. L.,	*Los Angeles*	10
Armstrong, M. I.,	*Berkeley*	1
Arnett, L. A.,	*Waterford*	34
Arnold, F. L.,	*Long Beach*	10
Arnold, H. J.,	*San Jose*	28
Arnold, H. R.,	*San Francisco*	23
Arnold, M. H.,	*San Diego*	22
Arnold, W. F.,	*Long Beach*	10
Arnot, P. H.,	*San Francisco*	23
Arthurs, E.,	*San Francisco*	22
Ash, R. L.,	*San Francisco*	23
Ashcroft, F. E.,	*Chula Vista*	20
Ashley, K. C.,	*Southgate*	10
Ashley, N. N.,	*Oakland*	1
Ashley, R. E.,	*San Francisco*	23
Askey, E. V.,	*Los Angeles*	10
Askey, J. M.,	*Los Angeles*	10
Atkinson, C. E.,	*Banning*	18
Atkinson, D. W.,	*San Francisco*	23
Atkinson, R. C.,	*Colfax*	17
Atsatt, R. F.,	*Santa Barbara*	27
Atteberry, C. V.,	*Inglewood*	10
Attwood, W. G.,	*Los Angeles*	10
Atwood, A. C.,	*Chowchilla*	13
Atwood, H. A.,	*Riverside*	18
Audrain, L. C.,	*Los Angeles*	10
Austin, L. C.,	*Los Angeles*	10
Austin, R. E.,	*Coronado*	22
Austin, T. C.,	*Pasadena*	10
Avery, J. W.,	*Hollywood*	10
Avery, W. J.,	*Fresno*	4
Axline, J. T.,	*North Hollywood*	10
Ayer, E. W.,	*Oakland*	1
Ayres, S., Jr.,	*Los Angeles*	10
Ayers, T. F.,	*San Francisco*	23
Ayres, W.,	*Los Angeles*	10
Azevedo, J. A.,	*Hayward*	1
Azevedo, J. L., Jr.,	*Modesto*	34
Azevedo, M. L.,	*Sacramento*	19

— B —

Babcock, D. W.,	*Placerville*	19
Babcock, E. S., Jr.,	*Sacramento*	19
Babcock, J. W.,	*Placerville*	19
Babcock, L. G.,	*Vernon*	10
Babcock, R. A.,	*Willits*	12
Babienco, A. T.,	*San Diego*	22
Babington, S. H.,	*Berkeley*	1
Baccus, C. F.,	*Woodstock, Ill.*	10
Bachelder, B. B.,	*Sebastopol*	33
Bacher, J. A.,	*San Francisco*	23
Bachhuber, C. A.,	*Los Angeles*	10
Bachmann, G. W.,	*Santa Monica*	10
Bacigalupi, A. A. J.,	*San Francisco*	23
Bacigalupi, L. D.,	*San Francisco*	23
Bacon, S. K.,	*Hollywood*	10

NAME	CITY	COUNTY SOCIETY NO.
Baer, H.,	*Elsinore*	18
Baetz, W. G.,	*Huntington Park*	10
Bahrenburg, G. E.,	*Bakersfield*	7
Bailey, C. O.,	*Los Angeles*	10
Bailey, F. J.,	*Red Bluff*	35
Bailey, W.,	*Los Angeles*	10
Bailey, T. E.,	*San Francisco*	23
Bailey, W. E.,	*Los Angeles*	10
Baiocchi, A. J.,	*San Jose*	28
Baird, C.,	*San Bernardino*	21
Baird, C. G.,	*Santa Maria*	27
Baird, H. R.,	*Sacramento*	19
Baird, M. N.,	*Redondo Beach*	10
Bak, E. W.,	*Los Angeles*	10
Baker, C. D.,	*Los Angeles*	10
Baker, G. L.,	*San Francisco*	23
Baker, H. V.,	*Napa*	15
Baker, J. J.,	*West Los Angeles*	10
Baker, M. D.,	*San Jose*	28
Baker, R. W.,	*Los Angeles*	10
Baker, W. P.,	*Santa Ana*	16
Bakewell, B.,	*Santa Barbara*	27
Baldwin, A. K.,	*Long Beach*	10
Baldwin, A. L.,	*Healdsburg*	33
Baldwin, L. G.,	*Pasadena*	10
Baldwin, M. C.,	*Riverside*	18
Ball, C. D.,	*Santa Ana*	16
Ball, D. R.,	*Santa Ana*	16
Ball, F. I.,	*Los Angeles*	10
Ball, H. A.,	*San Diego*	22
Ball, J. D.,	*San Francisco*	23
Ball, J. D.,	*Santa Ana*	16
Ballard, C. H.,	*Santa Monica*	10
Ballard, S. E.,	*Long Beach*	10
Balyeat, F. S.,	*Los Angeles*	10
Bames, H. O.,	*Los Angeles*	10
Bancroft, I. R.,	*Los Angeles*	10
Bandelier, R. H.,	*Los Angeles*	10
Banks, A. E.,	*San Diego*	22
Banks, W. H.,	*San Francisco*	23
Barber, E. M.,	*Oakland*	1
Barber, P. S.,	*Porterville*	36
Barbour, N. P.,	*Stockton*	24
Barclay, H. A.,	*San Diego*	22
Bardill, J. W.,	*Ventura*	37
*Barkan, A.,	*Zurich*	23
Barkan, H.,	*San Francisco*	23
Barkan, O.,	*San Francisco*	23
Barker, J. L.,	*Brawley*	6
Barlow, T. H.,	*Long Beach*	10
Barlow, W. J.,	*Los Angeles*	10
Barmore, M. G.,	*Calexico*	6
Barnard, F. S.,	*Los Angeles*	10
Barnard, H. D.,	*Los Angeles*	10
Barnard, H. D.,	*Los Angeles*	10
Barnard, L. B.,	*Oakland*	1
Barnes, J. W.,	*Stockton*	24
Barnes, L. B.,	*Newcastle*	17
Barnes, P. D.,	*Loomis*	17
Barnes, R. W.,	*Los Angeles*	10
Barnes, W. H.,	*Chico*	2
Barnett, E. D.,	*Santa Rosa*	33
Barnett, G. D.,	*San Francisco*	28
Baron, P. P.,	*Alameda*	31
Barr, A. L.,	*San Diego*	22
Barr, W. T.,	*Fresno*	4
Barrett, G. M.,	*San Francisco*	23
Barrette, L. C.,	*Sacramento*	19
Barron, H. C., Jr.,	*Escondido*	22
Barrow, J. V.,	*Los Angeles*	10
Barrow, W. H.,	*San Diego*	22
Barry, G. L.,	*San Jose*	28
Bartle, I. B.,	*San Luis Obispo*	25
Bartholomew, J. Y.,	*San Francisco*	23
Bartholomew, T. E.,	*Calexico*	6
Bartlett, C. L.,	*Pasadena*	10
Bartlett, E. I.,	*San Francisco*	23
Barton, E. W.,	*Alhambra*	10
Bascom, F. S.,	*Oakland*	1
Bates, C. E. H.,	*San Francisco*	23
Bathurst, E. W.,	*Etna*	31
Baughman, W. H.,	*Oakland*	1
Baumgaertner, O.,	*Los Angeles*	10
Baumgartner, C. J.,	*Los Angeles*	10
Bautista, M. D.,	*Stockton*	24
Baxter, C. P.,	*San Diego*	22
*Baxter, D. E.,	*Glendale*	10
Baxter, F. S.,	*Oakland*	1
Bay, M. W.,	*Los Angeles*	10
Bay, S. G.,	*Los Angeles*	10
Bayer, L. M.,	*San Francisco*	23
Bayley, W. A.,	*Los Angeles*	10
Baylis, J. N.,	*San Bernardino*	21
Beach, E. W.,	*Sacramento*	19
Beall, M. E.,	*Patton*	21
Bear, N. K.,	*Riverside*	18
Beard, E. A.,	*Inglewood*	10
Beardslee, A.,	*San Francisco*	23
Beardsley, J. R.,	*San Diego*	22
Beasley, E. M.,	*Santa Ana*	16
Beasley, H. E.,	*Glendale*	10
*Beattie, D. A.,	*San Jose*	28
Beattie, H.,	*Elk Grove*	19
Beattie, J. I.,	*San Jose*	28
Beattie, W. A.,	*Sacramento*	19
Beatty, H. J.,	*Clinton, New Jersey*	10
Beatty, J. D.,	*Los Angeles*	10
Beauchamp, H. H.,	*Sacran ento*	19

* Deceased

NAME	CITY	COUNTY SOCIETY NO.
Beaudoux, H. A.,	*Oakland*	1
Beaver, H. J.,	*Palo Alto*	28
Beaver, M. G.,	*Redlands*	21
Beck, H. H.,	*Corning*	35
Beck, H. R.,	*Los Angeles*	10
Beck, J. A.,	*Salinas*	14
Beck, J. E.,	*Tulare*	36
Becka, S. J.,	*Los Angeles*	10
Becker, G. H.,	*San Francisco*	23
Becker, H. F.,	*Los Angeles*	10
Becker, W. A.,	*Los Angeles*	10
Becker, W. N.,	*Sacramento*	19
Bedri, M. R.,	*Los Angeles*	10
Beebe, J. L.,	*Anaheim*	16
Beebe, L. J.,	*Santa Maria*	27
Beede, A. H.,	*Walnut Creek*	3
Beekler, A. M.,	*Santa Maria*	27
Beerman, W. F.,	*San Francisco*	23
Beeson, H. O.,	*San Bernardino*	21
Behne, K. F.,	*Los Angeles*	10
Behneman, H. M. F.,	*San Francisco*	23
Behrendt, R. A.,	*Los Angeles*	10
Beigelman, M.,	*Los Angeles*	10
Belford, W. W.,	*San Diego*	22
Bell, H. G.,	*San Francisco*	23
Bell, H. W.,	*Bakersfield*	7
Bell, M. T.,	*Ventura*	37
Bell, T. F.,	*Oakland*	1
Bell, W. L.,	*Oakland*	1
Belt, A. E.,	*Hollywood*	10
Belt, R. L.,	*Montrose*	10
Belyea, J. H.,	*Los Molinos*	35
Bender, W. L.,	*San Francisco*	23
Benner, E. A.,	*San Mateo*	26
Bennett, C. B.,	*Berkeley*	1
Bennett, C. L.,	*Los Angeles*	10
Bennett, C. R.,	*Pasadena*	10
Bennett, D. W.,	*San Francisco*	23
Bennett, E. L.,	*Fresno*	4
Bennett, E. S.,	*Los Angeles*	10
Bennett, L. B.,	*Los Angeles*	10
Bennett, L. C.,	*Los Angeles*	10
Bennett, M. C.,	*Berkeley*	1
Bennette, M. A.,	*San Bernardino*	21
Bennetts, F. A.,	*Los Angeles*	10
Benninger, C., Jr.,	*Oroville*	2
Benninghoven, C. D.,	*Oakland*	1
Benson, C. B.,	*Modesto*	34
Benson, E. H., Jr.,	*Berkeley*	1
Benton, J. J.,	*Oakland*	1
Benveniste, I. E.,	*Los Angeles*	10
Bepler, A. C.,	*San Francisco*	23
Berauer, J. M.,	*Los Angeles*	10
Berg, A.,	*San Francisco*	23
Berg, G. O.,	*Hollywood*	10
Berge, F. E.,	*Los Angeles*	10
Berger, A. A.,	*San Francisco*	23
Bergman, R. T.,	*Los Angeles*	10
Bergstrom, F. K.,	*Los Angeles*	10
Berkes, H. A.,	*Hollywood*	10
Berkley, H. K.,	*Los Angeles*	10
Berkove, S. E.,	*Oakland*	1
Berman, P.,	*Los Angeles*	10
Bernardini, C. V.,	*San Diego*	22
Berne, C. J.,	*Los Angeles*	10
Bernstein, A.,	*San Francisco*	23
Berry, B. S.,	*Santa Maria*	27
Bertero, J.,	*Santa Maria*	27
Bertola, M.,	*San Francisco*	23
Best, E. J.,	*San Francisco*	23
Bettercourt, M. F.,	*Watsonville*	29
Bettin, M. E.,	*Los Angeles*	10
Betts, I. H.,	*Visalia*	36
Bewley, M. H.,	*Los Angeles*	10
Bicknell, H. E.,	*Long Beach*	10
Bierman, J. M.,	*San Francisco*	23
Bieler, H. G.,	*Pasadena*	10
Bigby, M. H.,	*Whittier*	10
Bigler, A. B.,	*Chowchilla*	23
Bill, P. A.,	*San Francisco*	23
Billingsley, U. C.,	*Hayward*	1
Bilon, L. V.,	*Los Angeles*	10
Bine, R.,	*San Francisco*	23
Bingaman, E. W.,	*Salinas*	14
Bingaman, W. H.,	*Salinas*	14
Bingham, E.,	*Riverside*	18
Binkley, R. W.,	*Selma*	4
Binkley, T.,	*Sacramento*	19
Bird, A. A.,	*Oakland*	1
Birkenstock, C. F.,	*San Diego*	22
Birnbaum, W. D.,	*San Francisco*	23
Bishop, C. R.,	*Long Beach*	10
Bishop, T. E.,	*San Diego*	22
Bishop, T. W.,	*S. Pasadena*	10
Bittner, C. L.,	*Sacramento*	19
Bittner, L. H.,	*Glendale*	10
Bittner, S. P.,	*Glendale*	10
Black, B. W.,	*Oakland*	1
Black, E. C.,	*San Diego*	22
Black, H.,	*Palo Alto*	28
Blackfield, H. M.,	*San Francisco*	23
Blackmun, E. L.,	*Stockton*	24
Blackshaw, J. B.,	*Sonoma*	33
Blaine, E. S.,	*Los Angeles*	10
Blaisdell, F. E., Jr.,	*Watsonville*	29
Blake, C. R.,	*Richmond*	3
Blanchard, L. H.,	*Oakland*	1
Blanchard, T. L.,	*San Jose*	28
Blank, B.,	*Los Angeles*	10
Blatherwick, A. A.,	*Los Angeles*	10

NAME	CITY	COUNTY SOCIETY NO.
Blatherwick, G. W.,	*Los Angeles*	10
Blecker, R. F.,	*Fresno*	4
Blemer, J. W.,	*Diablo*	3
Blevins, W. J.,	*Woodland*	38
Blinn, J. F.,	*Stockton*	24
Bliss, G. L.,	*Long Beach*	10
Bliss, W. P.,	*Pasadena*	10
Bloch, J. L.,	*San Pedro*	10
Block, C. A.,	*San Francisco*	23
Blodgett, H. H.,	*Beverly Hills*	10
Blodgett, W. LeR.,	*Calistoga*	15
Blond, H. H.,	*Los Angeles*	10
Blong, P. H.,	*Alhambra*	10
Blood, J. N.,	*Redwood City*	26
Bloomfield, A. L.,	*San Francisco*	23
Blossom, H. S.,	*Patton*	21
Blum, S.,	*San Francisco*	23
Blumenthal, E. L.,	*Oakland*	1
Boardman, W. W.,	*San Francisco*	23
Bobbitt, A. N.,	*Pasadena*	10
Bobbitt, J. D.,	*San Diego*	22
Bock, C.,	*Los Angeles*	10
Bodman, E. W.,	*Pasadena*	10
Boe, M. R.,	*Alameda*	1
Boeck, W. C.,	*Los Angeles*	10
Boehm, C. A.,	*San Francisco*	23
Boehm, M.,	*Napa*	15
Boehmer, A. C.,	*Lodi*	24
Boericke, C. C.,	*Berkeley*	1
Boess, E. C.,	*Riverside*	18
Boetticher, E. O.,	*Los Angeles*	10
Boge, H. G. C.,	*Oakland*	1
Bogen, E.,	*Olive View*	10
Bogle, S. S.,	*Santa Rosa*	33
Boland, A. E.,	*Los Angeles*	10
Bolander, L. P.,	*Van Nuys*	10
Bolender, M. C.,	*Danville*	3
Boles, A.,	*Oakland*	1
Bolin, Z. E.,	*San Francisco*	23
Bolinger, H. J.,	*Lodi*	24
Boller, S.,	*Los Angeles*	10
Bollig, H. L.,	*Whittier*	10
Bolognino, O. J.,	*San Francisco*	23
Bolstad, H. C.,	*Oakland*	1
Bolze, E. H.,	*San Francisco*	23
Bonar, P. A.,	*San Francisco*	23
Bond, A. L.,	*Lindsay*	36
Bond, E. C.,	*Hanford*	8
Bonesteel, H. T. S.,	*Los Angeles*	10
Bonfiglio, J.,	*Hollywood*	10
Bonfiglio, V.,	*Los Angeles*	10
Bonoff, K. M.,	*Los Angeles*	10
Bonta, M. B.,	*Los Angeles*	10
Bonthius, A.,	*Pasadena*	10
Bonura, F.,	*Los Angeles*	10
Bonynge, C. W.,	*Los Angeles*	10
Boone, W. R.,	*Berkeley*	1
Boonshaft, L.,	*Los Angeles*	10
Booth, J. A.,	*San Mateo*	26
Booth, M. M.,	*St. Helena*	15
Borden, F. W.,	*San Jose*	28
Borley, R. D.,	*Half Moon Bay*	26
Bormann, G. B.,	*Hollywood*	10
Boscoe, A. R.,	*Sacramento*	19
Boscoe, C. T.,	*Oakland*	1
Boskowitz, G. H.,	*San Francisco*	23
Bost, C.,	*San Francisco*	23
Bost, F. C.,	*San Francisco*	23
Bosworth, H. W.,	*Los Angeles*	10
Botsford, M. E.,	*San Francisco*	23
Bourbon, O. P.,	*Los Angeles*	10
Bowen, C. B.,	*Oakland*	1
Bowen, F. P.,	*Los Angeles*	10
Bower, A. G.,	*Glendale*	10
Bowers, C. H.,	*Los Angeles*	10
Bowers, P. E.,	*Los Angeles*	10
Bowles, A. M.,	*Santa Rosa*	33
Bowles, F. H.,	*Oakland*	1
Bowman, P. J.,	*Fort Bragg*	12
Bowman, R. J.,	*Los Angeles*	10
Boyce, L.,	*Los Angeles*	10
Boyce, W. A.,	*Los Angeles*	10
Boyd, E. F.,	*Los Angeles*	10
Boyd, E. G.,	*Los Angeles*	10
Boyd, R. T.,	*San Francisco*	23
Boyd, T. O.,	*Long Beach*	10
Boyd, W. H.,	*Long Beach*	10
Boyer, H. R.,	*Glendale*	10
Boyer, J. I.,	*Long Beach*	10
Boyer, K. H.,	*Los Angeles*	10
Boyers, L. M.,	*Berkeley*	1
Boyle, S. F.,	*San Francisco*	23
Brady, A. L.,	*San Rafael*	11
Braithwaite, W. W.,	*Beverly Hills*	10
Bramhall, R. N.,	*Sacramento*	19
Bramkamp, A. L.,	*Banning*	18
Bramwell, L.,	*Lake Arrowhead*	21
Branch, W. E.,	*Los Angeles*	10
Brandel, H. M.,	*Los Angeles*	10
Brandenburg, K. C.,	*Long Beach*	10
Brandes, L.,	*Los Angeles*	10
Brandt, F. H.,	*Los Angeles*	10
Brannan, M.,	*Merced*	19
Bransford, S. G.,	*Suisun*	32
Brastad, J. P.,	*Anaheim*	16
Brazelton, H.,	*Oakland*	1
Breck, L. W.,	*Rochester, Minn.*	11
Breed, L. M.,	*Pasadena*	10
Breitman, H. B.,	*Los Angeles*	10
Brem, W. V.,	*Los Angeles*	10

NAME	CITY	COUNTY SOCIETY NO.
Brendel, F. P.,	*Sacramento*	19
Breslin, F. J.,	*Los Angeles*	10
Breuer, C. H.,	*San Jose*	28
Brewer, L. C.,	*Los Angeles*	10
Breyer, J. H.,	*Pasadena*	10
Bricca, C. R.,	*San Francisco*	23
Bridgman, J. G.,	*San Mateo*	26
Bridgman, W. R.,	*Hanford*	8
Briggs, G. A.,	*Sacramento*	19
Briggs, LeR. H.,	*San Francisco*	23
Briggs, W. M.,	*Monrovia*	10
Briggs, W. R.,	*Sacramento*	19
Brigham, E.,	*Dinuba*	36
Brigham, F. O.,	*Los Angeles*	10
Brill, W.,	*Los Angeles*	10
Brinckerhoff, E. E.,	*Oakland*	1
Brinkman, W. F.,	*Long Beach*	10
Briner, C. C.,	*Auburn*	17
Broaddus, C. A.,	*Stockton*	24
Brock, L. H.,	*San Francisco*	23
Brockow, J. L.,	*Los Angeles*	10
Brockway, A.,	*Los Angeles*	10
Brodovsky, D.,	*San Jose*	28
Broemser, M. A.,	*San Jose*	28
Bronfeld, N.,	*Los Angeles*	10
Brooks, C. S.,	*El Centro*	6
Brooks, E. R.,	*Camino*	1
Brooks, H. T.,	*Alhambra*	10
Brooks, LeR.,	*San Francisco*	23
Bross, R. B.,	*Los Angeles*	10
Broughton, G. A.,	*Ventura*	37
Brown, A.,	*San Francisco*	23
Brown, A. L.,	*Riverside*	18
Brown, A. L.,	*San Francisco*	23
Brown, B. H.,	*San Ysidro*	22
Brown, B. P.,	*Los Angeles*	10
Brown, C. M.,	*Los Angeles*	10
Brown, C. W.,	*San Diego*	22
Brown, D. F.,	*Redwood City*	26
Brown, E. O.,	*Sacramento*	19
Brown, F. A.,	*Santa Ana*	16
Brown, F. A.,	*Hayward*	1
Brown, G. D.,	*Pomona*	10
Brown, G. W.,	*Los Angeles*	10
Brown, H. A.,	*Berkeley*	1
Brown, H. A.,	*San Francisco*	23
Brown, H. C.,	*San Jose*	28
Brown, H. V.,	*Glendale*	10
Brown, J. M.,	*Los Angeles*	10
Brown, J. R.,	*Los Angeles*	10
Brown, M. H.,	*Los Angeles*	10
Brown, N. N.,	*Bakersfield*	7
Brown, P. K.,	*San Francisco*	23
Brown, R.,	*Santa Barbara*	27
Brown, R.,	*San Francisco*	23
Brown, R. H.,	*Pasadena*	10
Brown, T. H.,	*Orland*	38
Brown, W. H.,	*Palo Alto*	28
Browne, F. E.,	*Los Angeles*	10
Browne, G. C.,	*Oakland*	1
Brownfield, W. H.,	*Los Angeles*	10
Browning, C. F.,	*Los Angeles*	10
Brownlie, J. W.,	*Vallejo*	32
Brownsberger, C. N.,	*Glendale*	10
Bruck, E. L.,	*San Francisco*	23
Bruckman, F. S.,	*San Francisco*	23
Bruckman, H.,	*San Jose*	28
Bruff, W. C.,	*Whittier*	10
Bruin, M. R.,	*Los Angeles*	10
Brull, A.,	*Los Angeles*	10
Bruman, A. K.,	*San Francisco*	23
Brumbaugh, D. H.,	*Redlands*	21
Brumwell, D.,	*King City*	14
Brunemeier, E. H.,	*Placentia*	16
Brunie, L. J.,	*Pasadena*	10
Brunie, Y. S.,	*Pasadena*	10
Bruning, E. F.,	*Santa Ana*	16
Brunn, H.,	*San Francisco*	23
Brusco, H. D.,	*San Francisco*	23
Brush, N. H.,	*Santa Barbara*	27
Brust, P. R.,	*San Diego*	22
Bryan, L.,	*San Francisco*	23
Bryant, D. C.,	*Claremont*	10
Bryant, H. E.,	*Los Angeles*	10
Buchanan, R. A.,	*Lodi*	24
Buck, L. W.,	*Ross*	23
Buckell, A. E. T.,	*Oakland*	1
Buckingham, J. R.,	*Los Angeles*	10
Buckley, T. I.,	*Oakland*	1
Budd, J. W., Jr.,	*Los Angeles*	10
Budge, E. S.,	*Los Angeles*	10
Bull, E. C.,	*San Francisco*	23
Bullard, C. T.,	*King City*	14
Bullis, J. A. E.,	*Los Angeles*	10
Bullis, R. O.,	*Los Angeles*	10
Bullitt, J. B.,	*San Jose*	28
Bullock, A. S.,	*Alhambra*	10
Bullock, L. T.,	*Los Angeles*	10
Bulpitt, H. G.,	*Santa Monica*	10
Blupitt, J. M.,	*Santa Ana*	16
Bulpitt, P. A.,	*Santa Monica*	10
Bulpitt, Z. E. N.,	*Santa Ana*	16
Bulson, C. H.,	*Napa*	15
Bumgarner, J. W.,	*Richmond*	3
Bumpus, H. C.,	*Pasadena*	10
Bumpus, L. D.,	*Beverly Hills*	10
Bunnell, S.,	*San Francisco*	23
Burbank, W. W.,	*Long Beach*	10
Burby, J. J.,	*San Bernardino*	21
Burchfiel, C. M.,	*San Jose*	28
Burden, H. S.,	*Sacramento*	19
Burg, B. V.,	*Oakland*	1
Burge, M. H.,	*Los Angeles*	10
Burger, F. A.,	*El Centro*	6
Burger, T. O.,	*San Diego*	22
Burk, C. E.,	*Loma Linda*	21
Burke, A. M. B.,	*Alameda*	1
Burke, D. V.,	*Berkeley*	1
Burke, E. W.,	*Redlands*	21
Burke, G. R.,	*Alameda*	1
Burke, G. T.,	*Pasadena*	10
Burkelman, A.,	*Los Angeles*	10
Burkett, R. C.,	*Napa*	10
Burkhard, W. G.,	*San Francisco*	23
Burks, F. L. R.,	*Fresno*	4
Burlew, J. M.,	*Santa Ana*	16
Burlingame, R. W.,	*San Francisco*	23
Burnett, C. I.,	*Susanville*	9
Burnham, C. J.,	*Berkeley*	1
Burnham, C. J., Jr.,	*Berkeley*	1
Burnham, DeW. K.,	*San Francisco*	23
Burnham, P. S.,	*Los Angeles*	10
Burns, E. M.,	*Huntington Park*	10
Burns, G. C.,	*Huntington Park*	10
Burns, J. E.,	*Huntington Park*	10
Burns, T. S.,	*San Francisco*	23
Burnside, C.,	*Hollywood*	10
Burrall, G. M.,	*Los Angeles*	10
Burroughs, P. R.,	*Santa Monica*	10
Burrows, C. A.,	*Los Angeles*	10
Burrows, J. R.,	*San Francisco*	23
Burrows, L. A.,	*Los Angeles*	10
Burrows, M. T.,	*Pasadena*	10
Bursell, A.,	*Mountain View*	28
Burtness, H. I.,	*Santa Barbara*	27
Burton, F. A.,	*San Diego*	22
Burwell, L. C.,	*Los Angeles*	10
Bush, H. C.,	*Livermore*	1
Buskirk, W. H.,	*Los Angeles*	10
Bussey, D. G.,	*Avalon*	10
Butka, L. J.,	*Alhambra*	10
Butler, E.,	*San Francisco*	23
Butler, F. O.,	*Eldridge*	33
Butler, J. B. V.,	*San Luis Obispo*	25
Butler, K. W.,	*Madera*	4
Butler, O. W.,	*Los Angeles*	10
Butler, W. D.,	*San Luis Obispo*	25
Butt, E. G.,	*Redondo Beach*	10
Butt, E. M.,	*Los Angeles*	10
Butterfield, A. DeF.,	*National City*	22
Butterfield, E. R.,	*Burbank*	10
Byers, W. M.,	*Van Nuys*	10
Byington, P. C.,	*Modesto*	34
Byron, R. L.,	*Los Angeles*	10
Byron, W. P.,	*Lemoore*	8

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NAME	CITY	COUNTY SOCIETY NO.
Cady, D. W.,	*Pasadena*	10
Cady, F. P.,	*Los Angeles*	10
Cahen, C. G.,	*Los Angeles*	10
Cahoon, G. W.,	*Los Angeles*	10
Cain, E. F.,	*Anaheim*	16
Cain, W. T.,	*Gardena*	10
Calaway, A. A.,	*Fresno*	4
*Calder, D. H.,	*Los Angeles*	10
Caldwell, H. M.,	*La Canada*	10
Calkins, J. W.,	*Oakland*	1
Callander, C. L.,	*San Francisco*	23
Callaway, A. A.,	*Fresno*	4
Callaway, W. O.,	*Burlingame*	26
Callison, F. W.,	*San Francisco*	23
Calvin, G. F.,	*Oakland*	1
Cameron, A. C.,	*Los Angeles*	10
Cameron, L. C.,	*Santa Ana*	16
Cameron, M. C.,	*Los Angeles*	10
Cameron, N. W. A.,	*Los Angeles*	10
Camp, J. W.,	*La Habra*	16
Campbell, C. C.,	*Long Beach*	10
Campbell, C. R.,	*San Jose*	28
Campbell, D. McL.,	*San Francisco*	23
Campbell, G. E.,	*Pasadena*	10
Campbell, H. G.,	*Lindsay*	36
Campbell, H. S.,	*Los Angeles*	10
Campbell, J. R. U.,	*Dunsmuir*	31
Campbell, J. V.,	*Oakland*	1
Campbell, L. D.,	*San Jose*	28
Campbell, LeR. S.,	*Los Angeles*	10
Campbell, L. G.,	*Pasadena*	10
Campbell, M.,	*Los Angeles*	10
Campbell, M. P.,	*San Francisco*	23
Campbell, R. A.,	*Los Angeles*	10
Campiche, P. S.,	*San Francisco*	23
Canby, C. B.,	*Van Nuys*	10
Canelo, C. K.,	*San Jose*	28
Canfield, M. C.,	*El Centro*	6
Canfield, M. N.,	*Redlands*	21
Cannon, F. M.,	*San Rafael*	11
Cantoni, A. J.,	*San Diego*	22
Card, T. A.,	*Riverside*	18
Carden, J. J.,	*San Francisco*	1
Carey, H. B.,	*San Francisco*	23
Carey, T. S.,	*Los Angeles*	10
Carey, W. W.,	*Gridley*	2
Carhart, E. C.,	*Hollywood*	10
Carlile, M. N.,	*Lakeside*	22

*Deceased.

NAME	CITY	COUNTY SOCIETY NO.
Carlson, C. M.,	*Santa Rosa*	33
Carlson, E.,	*San Francisco*	23
Carlson, E. F.,	*Fort Jones*	31
Carlson, F. J.,	*Oakland*	1
Carmack, J. C.,	*San Bernardino*	21
Carpenter, F. L.,	*Berkeley*	1
Carpenter, H. C.,	*Berkeley*	1
Carpenter, H. L.,	*Richmond*	3
Carr, J. L.,	*San Francisco*	23
Carroll, R. L.,	*Los Angeles*	10
Carroll, W. A.,	*San Francisco*	23
Carson, A. B.,	*Oakland*	1
Carson, D. A.,	*San Francisco*	23
Carson, G. R.,	*San Francisco*	23
Carter, A. E.,	*North Hollywood*	10
Carter, C. E.,	*Pasadena*	9
Carter, F. H.,	*San Diego*	22
Carter, J. M.,	*San Francisco*	23
Carter, M. G.,	*Los Angeles*	10
Carter, R. A.,	*Los Angeles*	10
Carter, R. H.,	*Fresno*	4
Carter, W. E.,	*San Francisco*	1
Carter, W. N.,	*Los Angeles*	10
Cartmell, T. M.,	*Los Angeles*	10
Cartwright, E. W.,	*Oceanside*	22
Caruso, T. D.,	*Los Angeles*	10
Carver, W. F., Jr.,	*Hollywood*	10
Cary, N. A.,	*Berkeley*	1
Cary, R. J.,	*Long Beach*	10
Cary, W. S.,	*San Francisco*	23
Case, C. E.,	*Santa Maria*	27
Case, L. W.,	*Pomona*	10
Casey, H. A.,	*Oakland*	1
Casey, T. J.,	*Oakland*	1
Caskey, C. R.,	*Los Angeles*	10
Cass, D.,	*Los Angeles*	10
Cassady, E. S.,	*San Pedro*	10
Cassell, I.,	*San Jose*	28
Castlehun, P.,	*San Francisco*	23
Cates, H. B.,	*Los Angeles*	10
Catton, J.,	*San Francisco*	23
Cavanaugh, L. A.,	*Santa Barbara*	27
Cecil, A. B.,	*Los Angeles*	10
Cecil, J. J.,	*Patton*	21
Cerf, A. E.,	*San Francisco*	23
Chabanoff, E.,	*San Francisco*	23
Chaffee, B. S.,	*Long Beach*	10
Chaffin, G. L.,	*Los Angeles*	10
Chaffin, R. C.,	*Los Angeles*	10
Chaimov, A. S.,	*San Francisco*	23
Chain, J. N.,	*Eureka*	5
Chalmers, J. F.,	*La Jolla*	22
Chaloupka, H. R.,	*Los Angeles*	10
Chamberlain, B. H.,	*Alhambra*	10
Chamberlain, G. L.,	*Oakland*	1
Chamberlain, W. E.,	*Philadelphia, Pennsylvania*	23
Chamberlin, H. H.,	*Glendora*	10
Chambers, S. O.,	*Los Angeles*	10
Chamlee, W. F.,	*Hanford*	8
Champion, J. A.,	*Colton*	21
Chandler, L. R.,	*San Francisco*	23
Chaney, L. A.,	*Los Angeles*	10
Chang, D. K.,	*San Francisco*	23
Channell, W. L.,	*Oakland*	1
Chapline, F. L.,	*Orange*	16
Chapman, G. E.,	*San Francisco*	23
Chapman, H. S.,	*Stockton*	24
Chapman, J. F.,	*Pasadena*	10
Chapman, J. L.,	*Los Angeles*	10
Chapman, L. E.,	*Gerber*	35
Chapman, L. S.,	*Los Angeles*	10
Chapman, W. H.,	*Blythe*	18
Chappell, A. E.,	*Vallejo*	32
Chappell, G. E.,	*Sacramento*	19
Chappell, H. W.,	*Los Angeles*	10
Charlesworth, I. E.,	*Imola*	15
Charlton, A. T.,	*Whittier*	10
Charlton, C. F.,	*Pasadena*	10
Charmack, D. D.,	*San Francisco*	23
Charnock, D. A.,	*Los Angeles*	10
Chase, A. E.,	*Santa Ana*	16
Chase, A. S.,	*Los Angeles*	10
Chase, F. H.,	*Los Angeles*	10
Chase, R. E.,	*Glendale*	10
Chavez, M.,	*Los Angeles*	10
Cheney, G.,	*San Francisco*	23
Cheney, L. D.,	*Los Angeles*	10
Cheney, M. C.,	*Berkeley*	1
Cheney, W. F.,	*San Francisco*	23
Cherry, C. F.,	*Los Angeles*	10
Cherry, W. S.,	*Rialto*	21
Chesbro, E. J.,	*Gilroy*	28
Chessman, F. N.,	*Los Angeles*	10
Chiapella, J. O.,	*Chico*	2
Chidester, W. C.,	*San Mateo*	26
Childress, M. H.,	*Ione*	19
Childrey, J. H.,	*Santa Barbara*	27
Chilton, F. N.,	*San Jose*	28
Ching, P. S.,	*Fresno*	4
Chipman, E. D.,	*San Francisco*	23
Chipman, W. D.,	*Los Angeles*	10
Chouret, E. E.,	*Riverbank*	34
Christensen, A. C.,	*Glendale*	10
Christensen, E. L.,	*Los Angeles*	10
Christensen, G. E.,	*Los Angeles*	10
Christensen, W.,	*Los Angeles*	10
Christensen, W. M.,	*Eagle Rock*	10
Christierson, S. von,	*San Francisco*	23
Christman, P. W.,	*Sacramento*	19

NAME	CITY	COUNTY SOCIETY NO.
Church, C. H.,	*Berkeley*	1
Church, I. O.,	*Oakland*	1
Churchill, A. G.,	*Coronado*	22
Churchill, J. F.,	*San Diego*	22
Cieri, S.,	*Oakland*	1
Cilley, H. A.,	*San Jose*	28
Citron, J. W.,	*Oakland*	1
Clark, C. W.,	*San Rafael*	11
Clark, D. G.,	*Santa Paula*	37
Clark, D. M.,	*Santa Barbara*	27
Clark, E. B.,	*Stanford University*	28
Clark, E. P.,	*Los Angeles*	10
Clark, F. A.,	*Riverside*	18
Clark, G. S.,	*Los Angeles*	10
Clark, I. S.,	*Long Beach*	10
Clark, J. I.,	*Santa Ana*	16
Clark, J. W.,	*Santa Rosa*	33
Clark, L. J.,	*Hemet*	18
Clark, M. F.,	*San Francisco*	1
Clark, T. J.,	*Oakland*	1
Clark, W. A.,	*Pasadena*	10
Clark, W. F.,	*Los Angeles*	10
Clark, W. R. P.,	*San Francisco*	23
Clark, W. S.,	*Ventura*	37
Clarke, A. F.,	*Oakland*	1
Clarke, F. B.,	*Long Beach*	10
Clarke, R. M.,	*Los Angeles*	10
Clarke, W. T.,	*Los Angeles*	10
Clay, H. E.,	*San Francisco*	23
Clayton, J. H.,	*Los Angeles*	10
Cleary, E. W.,	*San Francisco*	23
Cleary, G. G.,	*San Francisco*	23
Cleave, D. C.,	*San Francisco*	23
Clecak, N. J.,	*Oakland*	1
Cleeves, M.,	*La Crescenta*	10
Clemmer, C. V.,	*San Marino*	10
Clemons, E. J.,	*Los Angeles*	10
Cline, J. W.,	*San Francisco*	23
Clock, C. J.,	*Redlands*	21
Close, F. M.,	*San Francisco*	23
Clough, F. E.,	*San Bernardino*	21
Clough, V. R.,	*Long Beach*	10
Coate, C. R.,	*Whittier*	10
Coate, J. D.,	*Oakland*	1
Coates, G. L., Jr.,	*Martinez*	3
Coblentz, L. B.,	*San Francisco*	23
Coblentz, Z. B.,	*San Francisco*	23
Cochran, G. H.,	*Los Angeles*	10
Cochran, G. V.,	*Oakland*	1
Cochran, R. C.,	*Yorba Linda*	16
Cocks, C. E.,	*Oakland*	1
Coe, H. C.,	*Oakland*	1
Coeur-Barron, F. H.,	*Los Angeles*	10
Coffey, E. C.,	*Orland*	38
Coffey, G. C.,	*Ventura*	37
Coffey, S. E.,	*Orland*	38
Coffey, W. B.,	*San Francisco*	23
Coffin, H. W.,	*Los Angeles*	10
Coghlan, C. C.,	*Los Angeles*	10
Cohen, M.,	*San Francisco*	23
Cohn, A. L.,	*San Francisco*	23
Cohn, H. J.,	*San Francisco*	23
Cohn, J.,	*Los Angeles*	10
Cohn, M. L.,	*San Francisco*	23
Colburn, J. M.,	*Riverside*	18
Colby, E. G.,	*San Diego*	22
Cole, E. R.,	*Selma*	31
Cole, G. L.,	*Los Angeles*	10
Cole, W.,	*Long Beach*	10
Coleman, B. E.,	*Los Angeles*	10
Coleman, D. D.,	*Alhambra*	10
Coller, G. J.,	*Los Angeles*	10
Collings, H. A.,	*Susanville*	9
Collins, A. W.,	*San Francisco*	23
Collins, C. D.,	*Fresno*	4
Collins, D. C.,	*Los Angeles*	10
Collins, F. K.,	*Los Angeles*	10
Collins, J. L.,	*Turlock*	34
Collins, M. C.,	*Turlock*	34
Collis, W. H. L.,	*Stockton*	24
Collischonn, P.,	*San Francisco*	23
Colver, B. N.,	*Glendale*	10
Comfort, H. W.,	*Fortuna*	5
Commons, E. L.,	*Los Angeles*	10
Compton, C. S.,	*Bakersfield*	7
Comstock, B. W.,	*Los Angeles*	10
Comstock, D. D.,	*Los Angeles*	10
Condit, J. C.,	*Oakland*	1
Condit, J. D.,	*Pasadena*	10
Congdon, W. R.,	*Santa Cruz*	29
Conklin, C. M.,	*Glendale*	10
Conlan, F. J. S.,	*San Francisco*	23
Conlan, P. T.,	*Los Angeles*	10
Conn, C. E.,	*Los Angeles*	10
Connell, DeB. W.,	*Berkeley*	1
Connell, J. A.,	*Riverside*	18
Conner, A. W.,	*San Jose*	28
Connor, C. L.,	*San Francisco*	23
Conroy, B. J.,	*Fairfax*	11
Conroy, T. F.,	*Palo Alto*	28
Conser, W. H.,	*Guadalupe*	27
Conzelmann, F. J.,	*Stockton*	24
Coodley, O.,	*Los Angeles*	10
Cook, C. S.,	*Los Angeles*	10
Cook, C. W.,	*Los Angeles*	10
Cook, E. D.,	*Azusa*	10
Cook, E. F.,	*Los Angeles*	10
Cook, E. J.,	*Los Angeles*	10
Cook, E. P.,	*San Jose*	28
Cook, J. D.,	*Olive View*	10
Cook, O. S.,	*Sacramento*	19
Cook, W. C.,	*Los Angeles*	10
Cook, W. P.,	*Los Angeles*	10
Cooke, A. B.,	*Los Angeles*	10
Cooke, W. C.,	*San Diego*	22
Cooley, C. L.,	*San Francisco*	23
Coon, G. W.,	*Riverside*	18
Cooper, A. J.,	*San Diego*	22
Cooper, C. M.,	*San Francisco*	23
Cooper, F. G.,	*Huntington Park*	10
Cooper, G. P.,	*Angels Camp*	24
Cooper, J. A.,	*Modesto*	34
Cooper, T. E.,	*Davis*	38
Cooper, W.,	*Palo Alto*	28
Corbin, D. E.,	*San Diego*	22
Cordes, F. C.,	*San Francisco*	23
Cornell, H. D.,	*San Diego*	22
Corneille, J. G.,	*Berkeley*	1
Cornett, W. F.,	*Pasadena*	10
Corr, W. P.,	*Riverside*	18
Cortright, C. B.,	*Berkeley*	1
Cosgrove, C. P.,	*Los Angeles*	10
Cosgrove, J. B.,	*Los Angeles*	10
Coshow, G. H.,	*Carpinteria*	27
Costolow, W. E.,	*Los Angeles*	10
Cottle, C. C.,	*Los Angeles*	10
Cottrell, C. C.,	*Scotia*	5
Cottrell, E. L.,	*San Jose*	28
Cottrell, J. C.,	*Long Beach*	10
Couey, E. J.,	*Fresno*	4
Coughlin, J. H.,	*San Bernardino*	21
Coulter, H. M.,	*South Pasadena*	10
Coulter, J. D.,	*Portola*	8
Counter, C. E.,	*Loma Linda*	21
Counter, H. M.,	*Buena Park*	16
Courville, C. B.,	*Los Angeles*	10
Cowan, A. B.,	*Fresno*	4
Cowgill, C. H.,	*Huntington Park*	10
Cowin, C. C.,	*Hollywood*	10
Cowles, D. C.,	*Fullerton*	16
Cox, B. E.,	*Coalinga*	4
Cox, E. R.,	*Los Angeles*	10
Cox, F. J.,	*Placerville*	19
Cox, G. W.,	*San Francisco*	23
Cox, J. E.,	*Coalinga*	4
Cox, T. J.,	*San Francisco*	23
Cox, W. J.,	*San Francisco*	23
Coyle, J. D., Jr.,	*Sacramento*	19
Coyne, A. E.,	*Los Angeles*	10
Crabtree, E. G.,	*San Diego*	22
Crabtree, E. H.,	*San Diego*	22
Crabtree, W. C.,	*San Diego*	22
Craft, E. D.,	*Los Angeles*	10
Crahan, M. E.,	*Los Angeles*	10
Craig, C. A.,	*Lakeport*	12
Craig, J. B.,	*Uplands*	21
Craig, L. G.,	*Pasadena*	10
Craig, R. G.,	*San Francisco*	23
Craig, S. A.,	*Ontario*	21
Craik, C. W.,	*Venice*	10
Crandall, F. G.,	*Santa Monica*	10
Crane, C. C.,	*San Francisco*	23
Crane, E. H.,	*Inglewood*	10
Crane, H. W.,	*Berkeley*	1
Crane, J. J.,	*Los Angeles*	10
Crane, W. R.,	*Los Angeles*	10
Crane, W. W.,	*Oakland*	1
Craven, L. L.,	*Glendale*	10
Craviotto, J. V.,	*Stockton*	24
Crawford, J. W.,	*San Francisco*	23
Crawford, W. W.,	*San Diego*	22
Crawshaw, J. A.,	*Hanford*	9
Crease, F. J.,	*Bakersfield*	16
Crease, H. G.,	*Bakersfield*	7
Cress, W. W.,	*Sacramento*	19
Cressman, R. G.,	*Stockton*	24
Cresson, M.,	*Cincinnati, Ohio*	27
Crew, D. A.,	*San Luis Obispo*	25
Criley, C. H.,	*Los Angeles*	10
Crisp, N. J.,	*Benicia*	32
Crispin, E. L.,	*Los Angeles*	10
Crockett, H. C.,	*Hayward*	1
Croft, L. E.,	*Ocean Park*	10
Cronan, L. A.,	*Davis*	38
Cronemiller, R. E.,	*Exeter*	36
Crooks, S. A.,	*Loma Linda*	21
Crosby, D.,	*Oakland*	1
Cross, W. W.,	*Oakland*	1
Crossan, J. W.,	*Los Angeles*	10
Crossen, A. S.,	*Weimar*	17
Crow, L. B.,	*San Francisco*	23
Crowe, H. E.,	*Los Angeles*	10
Crowe, J. A.,	*San Francisco*	23
Crowl, V. C.,	*Huntington Park*	10
Crowley, E.,	*Santa Maria*	27
Crozier, H. C.,	*Los Angeles*	10
Cruikshank, G. H.,	*San Diego*	22
Crum, H. C.,	*Alameda*	1
Crum, R. A.,	*Oakland*	1
Crusan, R. E.,	*Monrovia*	10
Cryst, J. H.,	*Los Angeles*	10
Cummings, R. A.,	*Los Angeles*	10
Cummings, R. S.,	*Los Angeles*	10
Cummins, F. A.,	*Los Angeles*	10
Cuneo, J. C.,	*San Jose*	28
Cuneo, P. J.,	*Bakersfield*	7
Cunha, F.,	*San Francisco*	23
Cunnane, P. J.,	*Los Angeles*	10
Cunnane, T. B.,	*Los Angeles*	10
Cunningham, R. L.,	*Los Angeles*	10
Cunningham, R. L.,	*Berkeley*	1
Cunningham, T. M.,	*La Mesa*	22
Cunningham, T. T.,	*Huntington P'k*	10
Curdts, C. E.,	*Oakland*	1
Currey, H. M.,	*Santa Ana*	16
Currie, A. H.,	*Los Angeles*	10
Curtis, C. G.,	*Brea*	16
Curtis, L. E.,	*Isleton*	19
Cushman, G. F.,	*San Francisco*	23
Cushman, R. A.,	*Talmage*	12
Custer, L. R.,	*San Francisco*	23
Cutler, O. I.,	*Loma Linda*	21
Cutter, R. K.,	*Berkeley*	1
Cutting, J. A.,	*Agnew*	28

— D —

NAME	CITY	COUNTY SOCIETY NO.
Dabney, T. G.,	*San Francisco*	1
Dahleen, H. E.,	*San Jose*	28
Dahlgren, R. W.,	*Fresno*	4
Dailey, W. J.,	*Oakland*	1
Daily, K.,	*Richmond*	3
Dakin, W. B.,	*Los Angeles*	10
Dale, C. L.,	*Loma Linda*	21
Dale, M. B.,	*Pasadena*	10
d'Alessio, J. A.,	*Santa Barbara*	27
Dallas, D. A.,	*San Francisco*	23
Daly, L. E.,	*Needles*	21
Dameron, J. D.,	*Stockton*	24
Daniel, W. H.,	*Los Angeles*	10
Darling, H. H.,	*San Francisco*	23
Dart, A. E.,	*Oakland*	1
Dashiell, W. A.,	*Los Angeles*	10
Dasse, H. W.,	*Los Angeles*	10
Dau, N. J.,	*Fresno*	4
Davenport, J. D.,	*Los Angeles*	10
David, R. A.,	*Los Angeles*	10
Davis, A. D.,	*San Francisco*	23
Davis, A. S.,	*Oakland*	1
Davis, E. A.,	*San Francisco*	23
Davis, F. J.,	*Westwood*	9
Davis, F. J., Jr.,	*Westwood*	9
Davis, H. C.,	*San Francisco*	23
Davis, H. H.,	*El Segundo*	10
Davis, H. J.,	*Sacramento*	19
Davis, H. L.,	*Huntington Park*	10
Davis, H. W.,	*San Francisco*	23
Davis, K. S.,	*Los Angeles*	10
Davis, S. S.,	*Oakland*	1
Davison, C. L.,	*Los Angeles*	10
Davison, S. T.,	*San Francisco*	23
Davitt, G. G.,	*Los Angeles*	10
Davlin, L. P.,	*Gonzales*	14
Davy, D. G.,	*San Francisco*	23
Dawson, G. I.,	*Napa*	15
Day, E. C.,	*Laguna Beach*	16
Day, P. W.,	*Repressa*	19
Day, R. V.,	*Los Angeles*	10
Dayton, G. O.,	*Los Angeles*	10
Dazey, G. K.,	*Santa Monica*	10
Deacon, G.,	*Pasadena*	10
Deamer, W. C.,	*San Francisco*	23
Deane, L. C.,	*San Francisco*	23
Dearing, B. F.,	*San Francisco*	23
Dearborn, R. R.,	*Madera*	3
de Campos, P. do A. R.,	*Hanford*	8
de Carle, D. W.,	*San Francisco*	23
Decker, C. W.,	*Los Angeles*	10
Decker, R. M.,	*Pasadena*	10
Deering, W. E.,	*Hollywood*	10
Delamere, G. S.,	*Marysville*	39
DeLancey, C. A.,	*San Rafael*	11
DeLappe, F. R.,	*Modesto*	34
De Long, E. W.,	*Los Angeles*	10
Delprat, G. D., Jr.,	*San Francisco*	23
Delprat, J. L. P.,	*San Francisco*	23
Dement, D. E.,	*Los Angeles*	10
Dempsey, R. B.,	*Vallejo*	32
Denman, C. H.,	*Berkeley*	1
Dennis, H. O.,	*Beverly Hills*	10
Denton, W. L.,	*Trona*	21
DePuy, C. A.,	*Oakland*	1
Derrick, J. S.,	*Los Angeles*	10
Desch, W. D.,	*Oakland*	1
Desimone, L. O.,	*Los Angeles*	10
Desmond, M. A.,	*Santa Monica*	10
Desrosier, G. W.,	*Colusa*	38
Desser, A. L.,	*Los Angeles*	10
Detling, F. E.,	*Los Angeles*	10
De Vaul, C. H.,	*Oakland*	1
Devin, S. B.,	*Los Angeles*	10
Dewey, E. B.,	*Pasadena*	10
Dewey, E. T.,	*San Francisco*	23
Dewey, H. G.,	*Yosemite*	13
Dick, P. J.,	*Oakland*	1
Dickerson, D. G.,	*Los Angeles*	10
Dickerson, H. W.,	*San Diego*	22
Dickey, C. A.,	*San Francisco*	23
Dickey, C. D., Jr.,	*Los Angeles*	10
Dickie, W. M.,	*Berkeley*	1
Dickinson, A. E.,	*Los Gatos*	28
Dickinson, C. C.,	*McCloud*	31
Dickson, E. C.,	*San Francisco*	23
Didier, F. W.,	*Wheatland*	39
Diederich, O. P.,	*Fresno*	4
Diefenbach, W. E.,	*La Jolla*	22
Dieffenbacher, P. F.,	*Jamestown*	24
Diepenbrock, A. B.,	*San Francisco*	23

NAME	CITY	COUNTY SOCIETY NO.
Dieterle, K. L.,	*Los Angeles*	10
Dietrich, H.,	*Los Angeles*	10
Dietz, H. L.,	*Oakland*	1
Diggs, C. S.,	*Los Angeles*	10
Dignan, H. H.,	*San Francisco*	23
Dillingham, F. S.,	*Los Angeles*	10
Dillon, E. T.,	*Los Angeles*	10
Dillon, J. R.,	*San Francisco*	23
Dillon, V. M.,	*San Francisco*	23
Diven, G. R.,	*Los Angeles*	10
Dixon, H. L.,	*Southgate*	10
Dixon, H. B.,	*San Francisco*	23
Doane, B. L.,	*Pasadena*	10
Doane, F. L.,	*Red Bluff*	35
Doane, P. S.,	*Pasadena*	10
Dock, G.,	*Pasadena*	10
Dock, W.,	*San Francisco*	23
Dockweiler, R. R.,	*Los Angeles*	10
Dodge, D. R., Jr.,	*Los Angeles*	10
Dodge, W.,	*Los Angeles*	10
Doehring, C. F.,	*Pasadena*	10
Dolan, P. E.,	*Livermore*	1
Dole, K. L.,	*Redlands*	21
Dolley, F. S.,	*Los Angeles*	10
Domann, A. H.,	*Orange*	16
Donald, W. G.,	*Berkeley*	1
Donoher, W. D.,	*Los Angeles*	10
Donohoe, E. C.,	*Glendale*	10
Donovan, M.,	*San Francisco*	23
Dooley, J. B.,	*Compton*	10
Doran, A. V.,	*Vallejo*	32
Dorius, G. R.,	*Oakland*	1
Dormody, H. F.,	*Monterey*	14
Dormody, H. L.,	*Monterey*	14
Dorr, W. R.,	*Arlington*	18
Dougall, J. P.,	*Los Angeles*	10
Dougan, S.,	*San Jose*	28
Dougherty, E. E.,	*Los Angeles*	10
Dougherty, J. A.,	*Oakland*	1
Dougherty, P. S.,	*Los Angeles*	10
Doughty, J. F.,	*Tracy*	24
Dow, J. N.,	*Los Angeles*	10
Dowd, R. E.,	*San Bernardino*	21
Dowling, S. W.,	*Santa Cruz*	29
Downing, S. R.,	*Oakland*	1
Downs, A. J.,	*Los Angeles*	10
Downs, L.,	*Hollywood*	10
Doyle, G. P.,	*Berkeley*	1
Doyle, J. B.,	*Los Angeles*	10
Doyle, J. C.,	*Los Angeles*	10
Doyle, J. J. L.,	*Chico*	2
Doyle, O. B.,	*Fresno*	4
Dozier, D. F.,	*Sacramento*	19
Dozier, E.,	*Redding*	30
Dozier, E. G.,	*San Fernando*	10
Dozier, L.,	*Stockton*	24
Dozier, T. J.,	*Antioch*	3
Drace, C. G.,	*Ojai*	37
Dragoo, S. V.,	*Avenal*	8
Drake, D. D.,	*San Francisco*	23
Drake, J. C.,	*Kerman*	4
Draper, D. B.,	*San Jose*	28
Drees, L. A.,	*San Francisco*	23
Drennan, P. G.,	*Oakland*	1
Dresel, R. L.,	*San Francisco*	23
Drucks, E. S.,	*Oakland*	1
Drummond, T. A.,	*Randsburg*	21
Dryden, F. M.,	*Pasadena*	10
Dryer, D. S.,	*Los Angeles*	10
Dryer, R. G.,	*Los Angeles*	10
Dryfoos, H. L.,	*San Francisco*	23
DuBois, C. W.,	*Los Angeles*	10
Dubois, W. C.,	*Santa Ana*	16
Dudley, H. W.,	*San Rafael*	11
Dufficy, G. W.,	*Sacramento*	19
Duffield, W.,	*Los Angeles*	10
Duggan, H.,	*San Francisco*	23
Dukes, C. A.,	*Oakland*	1
Dunbar, W. V.,	*San Pedro*	10
Duncan, J. A.,	*Marysville*	39
Duncan, M. V.,	*Lompoc*	27
Duncan, R. A.,	*Placentia*	16
Duncan, R. D.,	*Los Angeles*	10
Duncan, W. C.,	*Los Angeles*	10
Dundas, R. C.,	*Los Angeles*	10
Dunievitz, M.,	*Auburn*	17
Dunklee, G. K.,	*San Luis Obispo*	25
Dunlap, A. K.,	*Sacramento*	19
Dunlap, F. C.,	*Brawley*	6
Dunlop, J.,	*Pasadena*	10
Dunn, R. H.,	*San Francisco*	23
Dunne, N. P.,	*Oakland*	1
Dupuich, L. R.,	*Oakland*	1
Durgin, R. M.,	*Berkeley*	1
Durr, S. A.,	*San Diego*	22
Dutton, M. L.,	*San Francisco*	23
Duvall, E. M.,	*Long Beach*	10
Dye, W. G.,	*Los Angeles*	10
Dyke, L. H.,	*Oakland*	1
Dykes, H. R.,	*Taft*	7
Dyment, B. S.,	*Stanford University*	28
Dysart, B. R.,	*Pasadena*	10

— E —

NAME	CITY	COUNTY SOCIETY NO.
Eager, B. F.,	*San Diego*	22
Eakin, M. A.,	*Fresno*	4
Earel, F.,	*Santa Ana*	16
Earl, H. D.,	*San Pedro*	10
Earle, L. M.,	*Los Angeles*	10
Early, C. E.,	*Los Angeles*	10
Earwood, E. R.,	*Los Angeles*	10
Eastman, B. R.,	*Pasadena*	10
Eastman, W. R.,	*La Jolla*	22
Eaton, H. D.,	*Los Angeles*	10
Eaton, J. L.,	*Berkeley*	1
Eaton, W. H.,	*Santa Barbara*	27
Eaves, J.,	*Oakland*	1
Eberhardt, G.,	*Gonzales*	14
Ebright, G. E.,	*San Francisco*	23
Eckerle, W. J.,	*Wilmington*	10
Eddy, I. H.,	*Glendale*	10
Eder, H. L.,	*Santa Barbara*	27
Eder, L. F.,	*Santa Barbara*	27
Edgerton, A. E.,	*San Francisco*	23
Edler, W.,	*Pasadena*	10
Edmonds, F. W.,	*Oakland*	1
Edson, P. J.,	*Pasadena*	10
Edward, J. T.,	*Pasadena*	10
Edwards, F. A.,	*Los Angeles*	10
Edwards, H. W.,	*Los Angeles*	10
Edwards, J. C.,	*Berkeley*	1
Edwards, M. E.,	*San Francisco*	23
Edwards, W. M.,	*San Rafael*	11
Ehlers, E. C.,	*Loma Linda*	21
Ehlers, H.,	*Fowler*	4
Ehrenclou, O. N.,	*San Francisco*	23
Ehrke, A. A.,	*Compton*	10
Eidenmuller, W. C., Jr.,	*San Francisco*	23
Eisen, E. G.,	*Los Angeles*	10
Eiskamp, E. H.,	*Watsonville*	29
Elkins, D. L.,	*Long Beach*	10
Ellefson, O. D.,	*Hughson*	34
Elliot, A. H., Jr.,	*Santa Barbara*	27
Elliott, A. L.,	*Berkeley*	1
Elliott, F. P.,	*San Diego*	22
Ellis, E. D.,	*Altadena*	10
Ellis, G.,	*Berkeley*	1
Ellis, H. O.,	*Chico*	2
Ellis, J. A.,	*Alameda*	1
Ellis, L. T.,	*Los Angeles*	10
Ellis, L. W.,	*Los Angeles*	10
Ellsworth, A. B.,	*Long Beach*	10
Ellwood, P. M.,	*Oakland*	1
Eloesser, L.,	*San Francisco*	23
Ely, L. W.,	*San Francisco*	28
Emerson, C. V.,	*Los Angeles*	10
Emerson, M. L.,	*Oakland*	1
Emery, C. E.,	*San Francisco*	23
Emery, C. K.,	*Los Angeles*	10
Emge, L. A.,	*San Francisco*	23
Emmons, C. L.,	*Ontario*	21
Empey, L. W.,	*Roseville*	17
Emrick, E. L.,	*Venice*	24
Ende, F. M.,	*Hollywood*	10
Endres, W. J.,	*Los Angeles*	10
Eneboe, J. B.,	*San Diego*	22
Engel, E. E.,	*San Bernardino*	21
Engelman, W. T.,	*San Bernardino*	21
Engle, H. M.,	*San Francisco*	23
English, C. F.,	*Stockton*	24
English, G. G.,	*Hollywood*	10
Enloe, N. T.,	*Chico*	2
Enos, J. B.,	*Oakland*	1
Enos, M. M.,	*Oakland*	1
Epsteen, A.,	*San Francisco*	23
Epstein, A. I.,	*Los Angeles*	10
Epstein, N. N.,	*San Francisco*	23
Erkenbeck, J. W.,	*San Diego*	22
Erlanger, V. J.,	*San Diego*	22
Ernsberger, G. H.,	*Covina*	10
Escamilla, R. F.,	*San Francisco*	23
Eshman, L. A.,	*Los Angeles*	10
Eshoo, D.,	*Los Angeles*	10
Etter, O. R.,	*Oakland*	1
Eusden, R. B.,	*Long Beach*	10
Evans, H. R.,	*Los Angeles*	21
Evans, J. H.,	*Highland*	21
Evans, L. M.,	*Pasadena*	10
Evans, N. G.,	*S. Pasadena*	10
Evans, R. D.,	*Santa Barbara*	27
Evans, V. L.,	*San Luis Obispo*	25
Eveleth, R. H.,	*Roseville*	17
Everingham, S.,	*Oakland*	1
Every, H. M.,	*Petaluma*	33
Ewer, E. N.,	*Oakland*	1
Ewer, J. N.,	*Oakland*	1
Ewing, F. E.,	*Oakland*	1
Exelby, P. B.,	*Los Angeles*	10
Eymundson, K. S.,	*San Francisco*	23
*Eytinge, E. J.,	*Redlands*	21

— F —

NAME	CITY	COUNTY SOCIETY NO.
Faber, H. K.,	*San Francisco*	23
Fabian, J. P.,	*Chico*	2
Facey, F. D.,	*San Fernando*	10
Fagan, R. H.,	*Los Angeles*	10
Fagerstrom, D. P.,	*San Jose*	28
Fairchild, A.,	*Lancaster*	10
Fairchild, C. H.,	*Woodland*	38
Fairchild, F. R.,	*Woodland*	38
Fairchild, L. H.,	*Carlsbad*	22
Falconer, E. H.,	*San Francisco*	23
Falconer, F. H.,	*Los Angeles*	10
Falconer, R. A.,	*Los Angeles*	10
Falk, C. C.,	*Eureka*	5
Falk, C. C., Jr.,	*Eureka*	5
Falk, C. L.,	*Eureka*	5
Falk, E. V.,	*Modesto*	34
Fallas, R. E.,	*Los Angeles*	10
Fanning, J. L.,	*Sacramento*	19
Fanson, E.,	*Pasadena*	10
Faris, H. S.,	*Riverside*	18
Farman, G. F.,	*Los Angeles*	10
Farmer, J. L.,	*San Diego*	22
Farmer, L. E.,	*Folsom City*	19
Farnham, R. M.,	*Glendale*	10
Farnsworth, T. K.,	*Long Beach*	10
Farr, W. H.,	*Salinas*	14
Farrage, J.,	*Santa Ana*	16
Farrell, J. W.,	*Los Angeles*	10
Farrell, L. W.,	*Sacramento*	19
Fate, M. W.,	*Los Angeles*	10
Fate, W. A.,	*Los Angeles*	10
Faulkner, E. C.,	*Rio Vista*	32
Faulkner, J. L.,	*Red Bluff*	35
Faulkner, W. B., Jr.,	*San Francisco*	23
Fay, J.,	*San Francisco*	23
Fearn, J. R.,	*Oakland*	1
Fearon, W. M.,	*Los Angeles*	10
Feeley, M. A.,	*San Francisco*	23
Fehliman, W. E.,	*Santa Cruz*	29
Fehrensen, G.,	*Inglewood*	10
Feinberg, H.,	*San Francisco*	23
Feingold, B. F.,	*Los Angeles*	10
Felberbaum, W.,	*Santa Paula*	37
Feldman, C.,	*Maywood*	10
Feldman, J. F.,	*Los Angeles*	10
Felger, L.,	*Los Angeles*	10
Fellows, F. D.,	*San Francisco*	23
Felps, H. E.,	*Riverside*	18
Felsenthal, L.,	*Los Angeles*	10
Felt, F. R.,	*Ocean Beach*	22
Fenton, W. W.,	*San Bernardino*	21
Ferguson, C. J.,	*Los Angeles*	10
Ferguson, R. A.,	*Los Angeles*	10
Fernandez, M. L.,	*Pinole*	3
Fernish, C. A.,	*Santa Clara*	28
Ferrante, A. A.,	*San Francisco*	23
Ferrier, P. A.,	*Pasadena*	10
Ferry, F. C.,	*Los Angeles*	10
Fetter, E. M.,	*San Diego*	22
Fiegel, F. X.,	*San Bernardino*	21
Field, A. M.,	*Patterson*	34
Fielding, G. A.,	*Brentwood Heights*	10
Fieseler, W. R.,	*Los Angeles*	10
Filipello, E. A.,	*San Jose*	28
Fillmore, J. R.,	*Strathmore*	36
Finan, A. P.,	*Suisun*	32
Finch, W. C.,	*Los Angeles*	10
Findlay, H. V.,	*Santa Barbara*	27
Fine, I. A.,	*Los Angeles*	10
Finkelberg, I. L.,	*San Bernardino*	21
Finnerty, E. J.,	*Sonoma*	33
Finsand, V.,	*San Francisco*	23
Firestone, F.,	*San Francisco*	23
Fischer, S. S.,	*Oakland*	1
Fish, E. S.,	*Los Angeles*	10
Fish, L. W.,	*Los Angeles*	10
Fishbaugh, E. C.,	*Los Angeles*	10
Fishbon, H. M.,	*San Francisco*	23
Fisher, A. L.,	*San Francisco*	23
Fisher, C.,	*Los Angeles*	10
Fisher, C. A.,	*Los Angeles*	10
Fisher, R. E.,	*Pomona*	10
Fisher, R. H.,	*Oakland*	1
Fisher, V. L.,	*Long Beach*	10
Fisher, W. L.,	*Pomona*	10
Fist, H. S.,	*Los Angeles*	10
Fitzgerald, J. J.,	*Richmond*	3
Fitzgerald, W. W.,	*Stockton*	24
Fitzgibbon, C. C.,	*Merced Falls*	13
Fitzpatrick, E. B.,	*Martinez*	3
Flamson, R. J.,	*Los Angeles*	10
Flatley, M.,	*Weimar*	17
Fleisher, A. J.,	*Berkeley*	1
Fleissner, C. M.,	*Santa Rosa*	33
Fleming, E. W.,	*Los Angeles*	10
Fleming, H. W.,	*San Francisco*	23
Fleming, L. P.,	*Sanger*	4
Flesher, R. E.,	*Gardena*	10
Fletcher, C. D.,	*San Francisco*	23
Fletcher, E. G.,	*Oakland*	1
Fletcher, H. A.,	*San Francisco*	23
Fletcher, R.,	*San Francisco*	23
Flewelling, L. M.,	*Glendale*	10
Flitcroft, L. M. I.,	*Sacramento*	19
Floersheim, S.,	*Los Angeles*	10
Flood, R. G.,	*San Francisco*	23
Floreth, O. P.,	*Dixon*	32
Flower, K. C.,	*Venice*	10
Fluhmann, C. F.,	*San Francisco*	23
Foard, F. T.,	*Charleston, W. Va.*	27
Fogel, E. T.,	*Los Angeles*	10
Fogg, E. S.,	*Wasco*	7
Folkins, F. H.,	*Redlands*	21
Folte, A. G.,	*San Francisco*	23
Foord, A. G.,	*Pasadena*	10
Foote, F. S.,	*San Francisco*	23
Forbes, H. J.,	*Pasadena*	10
Forcade, W. P.,	*Corona*	18
Ford, H. G.,	*Richmond*	3

*Deceased.

NAME	CITY	COUNTY SOCIETY NO.
Ford, R. A.,	*Los Angeles*	10
Foree, L.,	*Oakland*	1
Fornoff, H. S.,	*Oakland*	1
Forsythe, J. S.,	*San Bernardino*	21
Fortier, R. M.,	*Salinas*	14
Fortson, G. R.,	*Susanville*	9
Foshay, A. W.,	*Oakland*	1
Foster, A. H.,	*Brawley*	6
Foster, C. A.,	*Los Angeles*	10
Foster, E. C.,	*Hanford*	8
Foster, G. A.,	*Sacramento*	19
Foster, H. E.,	*Berkeley*	1
Foster, J. G.,	*Los Angeles*	10
Fouch, F. L.,	*San Francisco*	23
Foulks, C. A.,	*Long Beach*	10
Fountain, E. R.,	*Merced*	13
Fowler, C. B.,	*Oakland*	1
Fowler, D. C.,	*Mill Valley*	11
Fowler, G. W. J.,	*Santa Clara*	28
Fowler, H. L.,	*Los Angeles*	10
Fox, C. M.,	*San Diego*	22
Fox, D. S.,	*Berkeley*	1
Fox, H. W.,	*Tulare*	36
Fox, L. H.,	*Bakersfield*	7
Frame, P. W.,	*Elk Grove*	19
Francis, R. T.,	*Oxnard*	37
Francis, R. K.,	*Inglewood*	10
Francis, V. C.,	*Long Beach*	10
Francis, W. V. C.,	*Los Angeles*	10
Francoz, M. A.,	*San Francisco*	23
Frandy, M. F.,	*Oakland*	1
Franklin, D. M.,	*Los Angeles*	10
Franklin, E. A.,	*Los Angeles*	10
Franklin, W. S.,	*Santa Barbara*	27
Fraser, H. E.,	*San Francisco*	23
Fraser, L. H.,	*Richmond*	3
Fraser, M. L.,	*Los Angeles*	10
Frawley, J. M.,	*Fresno*	4
Frederickson, H.,	*Eldridge*	33
Frees, B. M.,	*Los Angeles*	10
Fregeau, A. N.,	*San Francisco*	23
Freidell, H. F.,	*Santa Barbara*	27
French, C. E.,	*San Francisco*	23
French, J. R.,	*Los Angeles*	10
Freudenthal, L.,	*Gridley*	2
Frey, B. A.,	*Los Angeles*	10
Frey, R. G.,	*Red Bluff*	35
Frey, W. C.,	*San Francisco*	23
Freyermuth, O. G.,	*San Francisco*	23
Freytag, C. F.,	*Los Angeles*	10
Frick, D. J.,	*Los Angeles*	10
Fricke, A. A.,	*Los Angeles*	10
Friedberger, W.,	*Stockton*	24
Friedlander, R. D.,	*San Francisco*	23
Friedman, A.,	*San Francisco*	26
Friedman, J. C.,	*Banning*	18
Friedman, M.,	*Los Angeles*	10
Friesen, H. J.,	*Glendale*	10
Frisch, A.,	*Los Angeles*	10
Fritschen, W.,	*San Francisco*	23
Frizzell, R. R.,	*Pasadena*	10
Froehlich, D. E.,	*Oakland*	1
Frohman, B. S.,	*Los Angeles*	10
Frost, E.,	*Stockton*	24
Frost, K. P.,	*Los Angeles*	10
Frug, J.,	*Oakland*	1
Fuller, M. B.,	*Julian*	22
Fuller, R. N.,	*Tulare*	36
Fulmer, C. C.,	*San Francisco*	23
Furbush, C. G.,	*Oakland*	1
Furlong, R. M.,	*San Francisco*	11
Furness, G. B.,	*Visalia*	36
Furstman, J. M.,	*Monrovia*	10
Futch, C. E.,	*Los Angeles*	10

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NAME	CITY	COUNTY SOCIETY NO.
Gaffney, G. F.,	*San Francisco*	23
Gafford, J. A.,	*Huntington Park*	10
Gage, A. T.,	*Redlands*	21
Gage, C. E.,	*Los Angeles*	10
Gageby, L. H.,	*Los Angeles*	10
Gailmard, C. R.,	*Los Angeles*	10
Galbraith, A.,	*Oakland*	1
Galbraith, F. B.,	*Alameda*	1
Galbraith, G. H.,	*Long Beach*	10
Gale, W. V.,	*Los Angeles*	10
Gallagher, H. F.,	*Los Angeles*	10
Gallant, A. E.,	*Los Angeles*	10
Gallant, P. A.,	*Huntington Park*	10
Gallegos, P. B.,	*Stockton*	24
Galligan, C. A.,	*Monterey*	14
Gallwey, J.,	*San Francisco*	23
Gamette, D. L.,	*Los Angeles*	10
Ganoe, C. V.,	*Los Angeles*	10
Gans, C. H.,	*Long Beach*	10
*Garcelon, H.,	*Arrowhead Springs*	21
Garcia, L. C.,	*San Francisco*	23
Gardner, C. S.,	*Oakland*	1
Gardner, F. M.,	*San Bernardino*	21
Gardner, F. W.,	*Loma Linda*	21
Gardner, H. L.,	*San Francisco*	23
Gardner, W. E.,	*Riverside*	18
Gardner, W. M.,	*Los Angeles*	10
Garfinkle, F. E.,	*San Francisco*	23
Garland, L. H.,	*San Francisco*	23

*Deceased.

NAME	CITY	COUNTY SOCIETY NO.
Garner, G. W.,	*Taft*	7
Garnett, A. S.,	*San Bernardino*	21
Garrett, F. H.,	*Patton*	21
Garrison, B. E.,	*Riverside*	18
Garrison, J. F.,	*Inglewood*	10
Garrison, O. H.,	*Oakland*	1
Garstang, D. B.,	*Los Angeles*	10
Garth, W. L.,	*San Diego*	22
Gaspard, F. J.,	*Los Angeles*	10
Gasteiger, E. S.,	*Los Angeles*	10
Gates, C. Y.,	*San Francisco*	23
Gates, M. G.,	*Ocean Park*	10
Gates, M. J.,	*Santa Cruz*	29
Gatliff, W. W.,	*Butte City*	38
Gattuccio, B.,	*San Jose*	28
Gaulden, C. L.,	*Los Angeles*	10
Gauthier, A. E.,	*San Francisco*	23
Gay, H. M.,	*Pasadena*	10
Gay, LeR. K.,	*San Francisco*	23
Geddes, M. A.,	*Santa Ana*	16
Gehrels, E.,	*San Francisco*	23
Gehrels, F.,	*San Mateo*	26
Geiger, J. C.,	*San Francisco*	23
Geisler, W. H.,	*San Jose*	28
Geith, C. R.,	*Riverside*	18
Gelston, C. F.,	*San Francisco*	23
Gentry, H. G.,	*Redlands*	21
George, A. R.,	*Loma Linda*	21
George, J. M.,	*San Francisco*	23
George, L. H.,	*Loma Linda*	21
George, W. A.,	*Loma Linda*	21
Gerlough, R. J.,	*Menlo Park*	26
Germann, A. C.,	*Los Angeles*	10
Gernand, H. C.,	*Los Angeles*	10
Gerrard, C. C.,	*Redding*	30
Gerstle, M., Jr.,	*San Francisco*	23
Geshelin, H. I.,	*Los Angeles*	10
Geyman, M. J.,	*Santa Barbara*	27
Ghormley, V. G.,	*Fresno*	4
Ghrist, D. G.,	*Los Angeles*	10
Ghrist, D. M.,	*Glendale*	10
Ghrist, O. E.,	*Glendale*	10
Giannini, A. H.,	*Los Angeles*	23
Giberson, A. F.,	*San Quentin*	11
Gibbons, H., III,	*Silver Lake*	23
Gibbons, H. W.,	*Sacramento*	19
Gibbons, M. R.,	*San Francisco*	23
Gibbons, M. R., Jr.,	*San Francisco*	23
Gibbs, D. H.,	*Los Angeles*	10
Gibbs, R. S.,	*San Bernardino*	21
Gibson, A. L.,	*Los Angeles*	10
Gibson, T. E.,	*San Francisco*	23
Gidley, D. S.,	*Ontario*	21
Gidoll, S. H.,	*San Francisco*	23
Gifford, M. A.,	*Berkeley*	23
Gilbert, J. S.,	*Los Angeles*	10
Gilbert, N.,	*Van Nuys*	10
Gilbert, Q. O.,	*Oakland*	1
Gilbert, R.,	*San Francisco*	23
Gilbert, W. H.,	*Los Angeles*	10
Gilcreest, E. L.,	*San Francisco*	23
Gilfillan, H. M.,	*San Francisco*	23
Gilkey, W. D.,	*Long Beach*	10
Gillespie, P. B.,	*Santa Ana*	16
Gilliatt, W. H.,	*Coalinga*	4
Gillihan, A. F.,	*San Luis Obispo*	25
Gilliland, M. L.,	*Los Angeles*	10
Gillis, J. D.,	*Los Angeles*	10
Gillis, J. P.,	*Los Angeles*	10
Gilman, A. A.,	*San Francisco*	23
Gilman, P. K.,	*San Francisco*	23
Ginsburg, H. M.,	*Fresno*	4
Ginsburg, S. S.,	*Visalia*	36
Girard, F. R.,	*San Francisco*	23
Girdlestone, C. W.,	*Riverside*	18
Gius, E. A.,	*San Francisco*	23
Glascock, F. L.,	*Los Angeles*	10
Glaser, M. A.,	*Los Angeles*	10
Glass, S. J.,	*Los Angeles*	10
Glassman, S. C.,	*Los Angeles*	10
Gleason, A. L.,	*Oakland*	1
Gleeten, S. D.,	*Monrovia*	10
Glenn, J. S.,	*Exeter*	36
Glenn, R. A.,	*Oakland*	1
Glenn, T. H.,	*Los Angeles*	10
Glidden, R. Y., Jr.,	*Los Angeles*	10
Gliebe, P. A.,	*San Francisco*	23
Gloor, E. E.,	*Watsonville*	29
Glyer, R. T.,	*Mountain View*	28
Gobar, F. H.,	*Fullerton*	16
Gocher, T. E. P.,	*Fairfax*	11
Goddard, W. P.,	*Mill Valley*	11
Godshall, L. D.,	*Los Angeles*	10
Godwin, D. E.,	*Long Beach*	10
Goeckerman, W. H.,	*Los Angeles*	10
Goin, L. S.,	*Los Angeles*	10
Golden, J. H.,	*San Francisco*	23
Goldberg, A. T.,	*Fresno*	4
Goldberg, M. B.,	*San Francisco*	23
Goldberg, P. H.,	*Los Angeles*	10
Goldberg, S. S.,	*Los Angeles*	10
Goldberg, V.,	*Long Beach*	10
Golding, D. G.,	*Santa Monica*	10
Goldman, T. H.,	*Los Angeles*	10
Goldman, V. S.,	*San Francisco*	23
Goldstein, J.,	*Los Angeles*	10
Goldwasser, M.,	*Los Angeles*	10
Golitzin, A.,	*Los Angeles*	10
Gomes, J. J.,	*Oakland*	1
Gompertz, K. R.,	*Berkeley*	1

NAME	CITY	COUNTY SOCIETY NO.
Goodman, M.,	*Stockton*	24
Gorb, R.,	*San Francisco*	23
Gordon, K. W.,	*Los Angeles*	10
Gorham, C. B.,	*Monterey*	14
Gosney, C. W.,	*Hollywood*	10
Gospe, S. M.,	*San Francisco*	23
Gossage, H. S.,	*Petaluma*	33
Gossard, J. E.,	*Sierra Madre*	10
Gotfredson, H. L.,	*Monterey Park*	10
Gottbrath, N. J.,	*Agnew*	28
Gottlieb, A. J.,	*Los Angeles*	10
Gottschalk, A.,	*San Francisco*	23
Gough, A. S.,	*El Segundo*	10
Gouguet, L. J.,	*Sacramento*	19
Gould, N. B.,	*Modesto*	34
Gourley, I.,	*Livermore*	1
Gowan, C. H.,	*Glendale*	10
Graeser, J. B.,	*Oakland*	1
Graham, H. B.,	*San Francisco*	23
Graham, H. K.,	*San Diego*	22
Graham, J. A.,	*Barstow*	21
Graham, J. P.,	*Los Angeles*	10
Graham, L.,	*Newberry*	21
Graham, R. E.,	*Oakland*	1
Graham, R. S.,	*Sacramento*	19
Granger, A. S.,	*Los Angeles*	10
Grant, B. E., Jr.,	*Glendale*	10
Grant, R. F.,	*San Francisco*	23
Gratiot, W. M.,	*Monterey*	14
Grau, E. C.,	*Niles*	1
Graun, R. E.,	*Los Gatos*	28
Graves, C. A.,	*Beverly Hills*	10
Graves, J. H.,	*San Francisco*	23
Graves, J. M.,	*San Francisco*	23
Graves, R. V.,	*Fullerton*	16
Gray, E.,	*Los Angeles*	10
Gray, E. E.,	*Marysville*	39
Gray, E. H.,	*Woodland*	38
Gray, G. A.,	*San Jose*	28
Gray, G. H.,	*Oakland*	1
Gray, H.,	*San Francisco*	23
Gray, J. R.,	*Carmel*	14
Gray, P. A., Jr.,	*Santa Barbara*	27
Gray, R. M.,	*Indio*	18
Gray, R. N.,	*Hartford, Conn.*	23
Graybill, M. B.,	*Escondido*	22
Grayman, H. M.,	*Dos Palos*	13
Green, A. S.,	*San Francisco*	23
Green, B., Jr.,	*Riverside*	18
Green, H. R.,	*Palo Alto*	28
Green, J.,	*Los Angeles*	10
Green, J. W.,	*Vallejo*	32
Green, L. D.,	*San Francisco*	23
Green, M. I.,	*San Francisco*	23
Green, R. C.,	*Fullerton*	16
Greenbaum, G. B.,	*Los Angeles*	10
Greengo, C. G.,	*Los Angeles*	10
Greenwood, C. F.,	*Oakland*	1
Greenwood, E. N.,	*San Francisco*	23
Greer, E. D.,	*Oakland*	1
Gregg, F. C.,	*Calexico*	6
Gregg, H. J.,	*Calexico*	6
Gregory, C. A.,	*Sanitarium*	15
Gregory, F. S.,	*Redwood City*	26
Gregory, H. L.,	*Stockton*	24
Gregory, W. A.,	*Oakland*	1
Grey, C. A.,	*Burbank*	10
Griffin, W. L.,	*Los Angeles*	10
Griffith, A. H.,	*Oakland*	1
Griggs, D. E.,	*Los Angeles*	10
Grimmer, E. M.,	*Irvington*	1
Griner, E. C.,	*Stockton*	24
Grishaw, W. H.,	*Los Angeles*	10
Groat, M. J.,	*Los Angeles*	10
Grodsky, L. I.,	*San Francisco*	23
Groff, S. H.,	*Los Angeles*	10
Grogan, R. E.,	*Los Angeles*	10
Gronhovd, G. O.,	*Santa Paula*	37
Groper, M. J.,	*San Francisco*	23
Gross, H. G.,	*Eureka*	5
Grosse, A. B.,	*San Francisco*	23
Groves, R. L.,	*San Francisco*	23
Grow, L. W.,	*San Diego*	22
Grundy, G. M.,	*Newport Beach*	16
Guedel, A. E.,	*Beverly Hills*	10
Guenther, L. P.,	*Los Angeles*	10
Guerra, A. L.,	*Alameda*	1
Guidinger, W. E.,	*San Pedro*	10
Guido, F. R.,	*Visalia*	36
Guinan, E. R.,	*Richmond*	3
Gummess, K. C.,	*Los Angeles*	10
Gummig, E. A.,	*Pasadena*	10
Gumpert, M. W.,	*Los Angeles*	10
Gunderson, H. J.,	*Los Angeles*	10
Gundrum, F. F.,	*Sacramento*	19
Gundrum, W. H.,	*Owensmouth*	10
Gundry, F. J.,	*Bakersfield*	7
Gunn, F. G.,	*Kelseyville*	15
Gunther, L.,	*Los Angeles*	10
Gustafson, A. W.,	*Gustine*	13
Gustafson, R. K.,	*Pasadena*	10
Guttman, P. H.,	*Sacramento*	19

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NAME	CITY	COUNTY SOCIETY NO.
Haas, S. L.,	*San Francisco*	23
Haber, W. J.,	*San Francisco*	23
Hablutzel, C. E.,	*San Jose*	28

NAME	CITY	COUNTY SOCIETY NO.
Haddow, N. W. A.,	*Los Angeles*	10
Hadley, C. M.,	*San Bernardino*	21
Haenszel, A. L.,	*San Bernardino*	21
Hagan, B. J.,	*San Francisco*	23
Hagedorn, E. F.,	*Modesto*	34
Hagen, H.,	*San Luis Obispo*	25
Hager, B. H.,	*Los Angeles*	10
Hahn, L. W.,	*Berkeley*	1
Haig, T. R.,	*Sacramento*	19
Haight, L. M.,	*Stockton*	24
Haines, C. L.,	*Altadena*	10
Haines, W. H.,	*Etna*	31
Hainsworth, E. L.,	*Ventura*	37
Halburg, C. T.,	*Glendale*	10
Haldeman, K. O.,	*San Francisco*	23
Hale, N. G.,	*Sacramento*	19
Haley, P. S.,	*San Jose*	28
Hall, C.,	*Oakland*	1
Hall, C.,	*Los Angeles*	10
Hall, C. C.,	*Oakland*	1
Hall, E. H.,	*Vernon*	10
Hall, E. M.,	*Los Angeles*	10
Hall, G. E.,	*Palo Alto*	28
Hall, G. J.,	*Sacramento*	19
Hall, G. P.,	*San Jose*	28
Hall, G. S.,	*Los Angeles*	10
Hall, L. L.,	*Montebello*	10
Hall, R. C.,	*San Diego*	22
Hall, T. G.,	*San Francisco*	23
Halley, E. C.,	*Sanger*	4
Halsey, W. H.,	*San Diego*	22
Halverson, W. L.,	*Pasadena*	10
Ham, G. H.,	*Culver City*	10
Haman, J. O.,	*San Francisco*	23
Hambleton, H. G.,	*Los Angeles*	10
Hambleton, M. P.,	*Fontana*	21
Hambo, C. C.,	*Riverside*	18
Hamer, C.,	*Glendale*	10
Hamilton, G. V.,	*Santa Barbara*	27
Hamilton, J. K., Jr.,	*Alameda*	1
Hamilton, L. M.,	*Oakland*	1
Hamilton, P. L.,	*Chico*	2
Hamilton, P. M.,	*Alhambra*	10
Hamilton, R. L.,	*Marysville*	39
Hamlin, O. D.,	*Oakland*	1
Hamlin, R. E.,	*Santa Rosa*	33
Hammack, R. W.,	*Los Angeles*	10
Hammond, N. E.,	*Los Angeles*	10
Hand, F. B.,	*San Francisco*	23
Hand, L. J.,	*San Francisco*	23
Hanford, F. W.,	*Los Angeles*	10
Hankins, F. D.,	*Riverside*	18
Hankins, J. W.,	*Azusa*	10
Hanley, B. J.,	*Los Angeles*	10
Hanlon, E. W.,	*San Francisco*	23
Hanlon, H. H.,	*Los Angeles*	10
Hanna, C. M.,	*McArthur*	30
Hannah, W.,	*Long Beach*	10
Hansen, A. M.,	*Los Angeles*	10
Hansen, O. J.,	*Redding*	30
Hanson, J. H.,	*San Francisco*	23
Hanson, S.,	*Stockton*	24
Hanze, H. G.,	*Solvang*	27
Hanzlik, P. J.,	*San Francisco*	26
Happ, W. M.,	*Los Angeles*	10
Hara, H. J.,	*Los Angeles*	10
Hara, M. F.,	*Los Angeles*	10
Harada, M. A.,	*Sacramento*	19
Harbaugh, O. S.,	*San Diego*	22
Harbaugh, R. W.,	*San Francisco*	23
Harbert, E.,	*Stockton*	24
Hardeman, V. V.,	*San Francisco*	23
Harder, W. R.,	*Los Gatos*	28
Harding, G. F.,	*Santa Monica*	10
Harding, H. W.,	*Oakland*	1
Harding, M. C.,	*San Diego*	22
Harding, T. E. W.,	*Los Angeles*	10
Hardy, B. W.,	*Huntington Beach*	16
Hare, G. A.,	*Fresno*	4
Hare, H. P.,	*Los Angeles*	10
Hare, M. M.,	*Glendale*	10
Hare, R. A.,	*Santa Barbara*	27
Harmon, E. D.,	*San Francisco*	23
Harmon, T. G.,	*San Francisco*	23
Harner, C. E.,	*Long Beach*	10
Harner, H. R.,	*Los Angeles*	10
Harper, T. C.,	*Reno, Nevada*	11
Harrington, D. O.,	*San Francisco*	23
Harrington, J. T.,	*Santa Cruz*	29
Harr, R. V.,	*Eldridge*	33
Harris, E. L.,	*Oakland*	1
Harris, F. I.,	*San Francisco*	23
Harris, H. I.,	*Los Angeles*	10
Harris, J. B.,	*Sacramento*	19
Harris, J. M.,	*Los Angeles*	10
Harris, M. S.,	*Los Angeles*	10
Harris, M. W.,	*Novato*	11
Harris, R. C.,	*Santa Ana*	16
Harris, R. H.,	*Los Angeles*	10
Harrison, E.,	*Los Angeles*	10
Harrison, E. S.,	*Gridley*	2
Harrison, F.,	*Gridley*	2
Harrison, W. J.,	*Guernsey, Wyo.*	10
Hart, A. C.,	*Sacramento*	19
Hart, C. D.,	*San Francisco*	23
Hart, M. E.,	*San Francisco*	26
Hart, V. W.,	*Yreka*	31
Hart, W. E.,	*Oakland*	1
Harter, T. H.,	*Pasadena*	10
Hartman, G. J.,	*Pasadena*	10
Hartman, G. W.,	*San Francisco*	23
Hartman, H.,	*Modesto*	34
Hartwell, R. W.,	*Beaumont*	18
Hartwig, L. G.,	*Los Angeles*	10
Harvey, J. E.,	*Pasadena*	10
Harvey, R. J.,	*Anaheim*	16
Harwood, D. A.,	*Santa Ana*	16
Hashiba, G. K.,	*Fresno*	4
Haskell, H. A.,	*Santa Rosa*	33
Hastings, H.,	*Los Angeles*	10
Hastings, S. W.,	*Monterey*	14
Hastreiter, R. F.,	*Los Angeles*	10
Hatfield, H. L.,	*Pasadena*	10
Hawes, R. E.,	*Huntington Beach*	16
Hawk, C. L.,	*Los Angeles*	10
Hawkins, C. L.,	*Taft*	7
Hawkins, G. A.,	*Reedley*	4
Hawkins, G. G.,	*Madera*	4
Hawkins, H. M.,	*E. Bakersfield*	10
Hawkins, J. O.,	*San Rafael*	11
Hawkins, L. P.,	*Los Angeles*	10
Hawley, M. C.,	*Agnew*	28
Haworth, M. W.,	*Sacramento*	19
Hay, E. O.,	*Los Angeles*	10
Hayes, C. M.,	*Los Angeles*	10
Hayes, E. W.,	*Monrovia*	10
Haygood, A. G.,	*Downey*	10
Hayhurst, D. E.,	*Ontario*	21
Hayhurst, J. S.,	*Redlands*	21
Haynes, F. W.,	*Los Angeles*	10
Haynes, J. R.,	*Los Angeles*	10
Hayton, C. H.,	*Los Angeles*	10
Hazeltine, M. E.,	*San Rafael*	11
Heald, A. H.,	*San Francisco*	26
Heald, E. S.,	*Berkeley*	1
Heard, W. R.,	*Pasadena*	10
Hebert, A. W.,	*San Francisco*	23
Hedberg, C. C.,	*San Francisco*	23
Heddens, V. O.,	*Pasadena*	10
Hedges, L. A.,	*Richmond*	3
Heegler, F. D.,	*Napa*	15
Heffelfinger, M. A.,	*Los Angeles*	10
Heidenreich, H. H.,	*Los Angeles*	10
Heidenreich, W. M.,	*Arcada*	10
Heiges, L. E.,	*Lompoc*	27
Heiges, L. E., Jr.,	*Lompoc*	27
Hein, G. E.,	*Burlingame*	23
Heinatz, M. A.,	*Oakland*	1
Heinz, R.,	*Pleasanton*	1
Heissig, I.,	*Los Angeles*	10
Held, F.,	*Anaheim*	16
Heisley, G. F.,	*San Francisco*	23
Helstrom, G. L.,	*Fontana*	21
Hemken, L.,	*Los Angeles*	21
Hemminger, G. W.,	*Biggs*	2
Hench, J. M.,	*Stockton*	24
Henderson, A. M.,	*Sacramento*	19
Henderson, E. W.,	*Alamèda*	23
Henderson, H. E.,	*Santa Barbara*	27
Henderson, H. G.,	*San Francisco*	23
Henderson, J. G.,	*San Francisco*	23
Henderson, R. G.,	*Long Beach*	10
Henderson, W. R.,	*Long Beach*	10
Hendricks, F. R.,	*Ventura*	37
Hendrickson, H. S.,	*Los Angeles*	10
Henke, G. B.,	*Ontario*	21
Henning, B. H.,	*San Francisco*	23
Henninger, L. L. R.,	*Pasadena*	10
Henrich A. G.,	*Los Angeles*	10
Henry, A. W.,	*San Leandro*	1
Henry, J. R.,	*Oakland*	1
Henry, M. G.,	*Los Angeles*	10
Hensel, G. C.,	*San Francisco*	23
Hensler, H. N.,	*San Anselmo*	11
Hepplewhite, J. G.,	*Chico*	2
Heppner, G. J.,	*San Francisco*	23
Herman, B. S.,	*San Francisco*	23
Heron, I. C.,	*San Francisco*	23
Herrick, A. B., Jr.,	*Santa Rosa*	33
Herrick, F. L.,	*Livermore*	1
Herring, J. B.,	*San Francisco*	23
Herscher, H. L.,	*Los Angeles*	10
Hershberger, L.,	*Los Angeles*	10
Hershey, C. J.,	*Los Angeles*	10
Hershman, F.,	*Los Angeles*	10
Hertzog, F. C.,	*Long Beach*	10
Herzikoff, S. S.,	*Los Angeles*	10
Herzog, G. K.,	*San Francisco*	23
Hessel, V. E.,	*Los Angeles*	10
Heuler, L.,	*Fellows*	7
Heuschele, W. H.,	*San Jose*	28
Hewitt, D.,	*Los Angeles*	10
Heylmun, H. H.,	*Long Beach*	10
Hiatt, R. S.,	*Modesto*	34
Hibben, J. S.,	*Pasadena*	10
Hickey, N. G.,	*Walnut Park*	10
Hicks, A. M.,	*San Francisco*	23
Hicks, J. R.,	*Tulare*	36
Hieronymus, A.,	*Oakland*	1
Higbee, D. R.,	*San Diego*	22
Higgs, D. W. P.,	*Chula Vista*	22
Hileman, J. E.,	*San Diego*	22
Hill, A. L.,	*Los Angeles*	10
Hill, E. J.,	*Eureka*	5
Hill, E. W.,	*San Andreas*	24
Hill, H. A.,	*San Francisco*	23
Hill, H. G.,	*Redlands*	21
Hill, H. P.,	*San Francisco*	23
Hill, J. C.,	*Palm Springs*	18
Hill, L. R.,	*Long Beach*	10
Hill, M. R.,	*Los Angeles*	10
Hill, R. B.,	*Los Angeles*	10
Hill, R. C.,	*Exeter*	36
Hill, T. P.,	*Lakeport*	12
Hill, W. B.,	*Long Beach*	10
Hilliard, C. G.,	*Redlands*	21
Hills, C. B.,	*Berkeley*	1
Hillyard, L. V.,	*Los Angeles*	10
Hillyer, L.,	*Los Banos*	13
Hilton, J. J.,	*Los Angeles*	10
Hinckley,	*Corcoran*	8
Hines, D. C.,	*Palo Alto*	28
Hines, L. W.,	*Santa Rosa*	33
Hinman, F.,	*San Francisco*	23
Hippach, R. M.,	*Los Angeles*	10
Hirschfeld, M. H.,	*San Francisco*	23
Hirshfeld, S.,	*Los Angeles*	10
Hiscox, E. J.,	*Loma Linda*	21
Hitchcock, H. H.,	*Oakland*	1
Hixson, W. C., Jr.,	*Beverly Hills*	10
Hoag, C. L.,	*San Francisco*	23
Hoag, H. J.,	*San Jose*	28
Hoagland, H.,	*Palm Springs*	18
Hodgdon, F. W., Jr.,	*Pasadena*	10
Hodges, W. A.,	*La Vina*	10
Hodgins, F. W.,	*Oakland*	1
Hodgin, R. I.,	*Big Bar*	21
Hodgkin, P.,	*El Centro*	6
Hoefer, A. G.,	*San Diego*	22
Hoffman, A. M.,	*Los Angeles*	10
Hoffman, H. V.,	*San Francisco*	23
Hoffman, L. H.,	*San Francisco*	23
Hoffman, P. B.,	*Marysville*	39
Hoffman, P. E.,	*San Francisco*	23
Hoffman, R. O.,	*San Diego*	22
Hogg, R. L.,	*Saratoga*	28
Hohanshelt, A. S.,	*Olive View*	10
Hohl, E. M.,	*Los Angeles*	10
Hoke, P. I.,	*Los Angeles*	10
Holcomb, W. F.,	*Oakland*	1
Holder, H. G.,	*San Diego*	22
Holeman, G. S.,	*Centerville*	1
Holladay, F. S.,	*Los Angeles*	10
Hollenbeck, A. E.,	*Eagle Rock*	10
Holleran, G. C.,	*Brawley*	6
Holleran, J. F.,	*Los Angeles*	10
Holleran, W. M.,	*Los Angeles*	10
Holley, W. W.,	*Inglewood*	10
Holliger, C. D.,	*Stockton*	24
Hollingsworth, L. D.,	*Los Angeles*	10
Hollingsworth, M. W.,	*Santa Ana*	16
Hollombe, B. S.,	*Los Angeles*	10
Holm, E.,	*Eureka*	5
Holman, E. F.,	*San Francisco*	23
Holman, W. F.,	*Los Angeles*	10
Holmer, V. C.,	*San Francisco*	23
Holmes, A. J.,	*Pasadena*	10
Holmes, O. M.,	*San Mateo*	26
Holt, C. Z.,	*Los Angeles*	10
Holt, R. A., Jr.,	*Los Angeles*	10
Holzman, A. J.,	*Santa Barbara*	27
Holzman, R. R.,	*Los Angeles*	10
Hombach, F. J.,	*Santa Barbara*	27
Homer, R. W.,	*Ventura*	37
Homman, G. L.,	*Los Angeles*	10
Homme, O. H.,	*Los Angeles*	10
Honaker, G. T.,	*San Leandro*	1
Honor, H. C.,	*Cotati*	33
Honor, V. O.,	*Cotati*	33
Hoobler, H. R.,	*Oakland*	1
Hooker, M. O.,	*Santa Barbara*	27
Hooval, J. H.,	*Ontario*	21
Hoover, E. F.,	*San Diego*	22
Hoover, J. N.,	*Long Beach*	10
Hope, R. B.,	*Los Angeles*	10
Hopkins, E. K.,	*San Francisco*	23
Hopkins, H.,	*Los Angeles*	10
Hopkins, J. W.,	*Glendale*	10
Hopkins, M. A.,	*Sacramento*	19
Hopkins, M. F.,	*San Jose*	28
Hopkirk, C. C.,	*Santa Monica*	10
Horn, C. E.,	*San Francisco*	23
Horner, C. D.,	*San Francisco*	23
Horner, H. E.,	*West Los Angeles*	10
Horner, W. D.,	*San Francisco*	23
Horst, W. W.,	*Wilmington*	10
Horton, F. L.,	*Pomona*	10
Horwitz, H.,	*Oakland*	1
Hosford, G. N.,	*San Francisco*	23
Hoskins, G.,	*Long Beach*	10
Hoskins, H. D.,	*San Diego*	22
Hosmer, C. M.,	*San Diego*	22
Hosmer, M. N.,	*San Francisco*	23
Houck, G. H.,	*Los Angeles*	10
Hough, R. C.,	*San Diego*	22
Houghton, A. D.,	*San Fernando*	10
Houloose, J.,	*Long Beach*	10
House, L. C.,	*El Centro*	6
Houseworth, A. L.,	*Los Angeles*	10
Houston, A. J.,	*San Francisco*	23
Houzvicka, O. A.,	*San Diego*	22
Hovde, A. G.,	*Hollywood*	10
Howard, B. F.,	*Sacramento*	19
Howard, C. E.,	*San Diego*	22
Howard, G. R.,	*Bell*	10
Howard, N. J.,	*San Francisco*	23
Howe, R. D.,	*Redwood City*	26
Howell, A. J.,	*Berkeley*	1
Howitt, H. O.,	*San Rafael*	11
Howson, C. R.,	*Los Angeles*	10
Hoyt, H. S.,	*Pacific Grove*	14
Hoyt, W. F.,	*Berkeley*	1
Hromadka, A. B.,	*Santa Monica*	10
Hubbard, C. D.,	*Huntington Park*	10
Hubert, C. I.,	*Los Angeles*	10
Huenergardt, A. G.,	*Los Angeles*	10

NAME	CITY	COUNTY SOCIETY NO.
Huenergardt, H. A.,	*Berkeley*	1
Huff, G. D.,	*San Diego*	22
Huff, L. J.,	*Los Angeles*	10
Huffman, H. G.,	*Santa Ana*	16
Huffman, L. D.,	*Los Angeles*	10
Huggins, W. L.,	*Los Angeles*	10
Hughes, R. E.,	*Los Angeles*	23
Hughes, S. E.,	*Los Angeles*	10
Hull, E. H.,	*San Bernardino*	21
Hull, J. P.,	*Stockton*	24
Hull, L. C.,	*Hollister*	20
Hull, R. L.,	*Hollister*	20
Humber, J. D.,	*San Francisco*	23
Hummel, E. M.,	*Talmage*	12
Humphrey, W. H.,	*Oakland*	1
Humphreys, J. M.,	*Sanger*	4
Hunnicutt, C. C.,	*Los Angeles*	10
Hunnicutt, L. G.,	*Pasadena*	10
Hunsberger, H. S.,	*San Francisco*	23
Hund, H. O.,	*San Rafael*	11
Hunt, R. A.,	*Riverdale*	4
Hunt, R. W.,	*Santa Barbara*	27
Hunt, V. C.,	*Los Angeles*	10
Hunt, W. A.,	*Fresno*	4
Hunt, W. R.,	*Santa Barbara*	27
Hunter, P. M.,	*Pebble Beach*	14
Hunter, T. V.,	*Hollywood*	10
Hunter, W. E.,	*South Gate*	10
Hunter, W. E.,	*Los Angeles*	10
Huntley, A. C.,	*Point Arena*	12
Huntington, H. A.,	*Los Angeles*	10
Hurwitt, S. J.,	*San Francisco*	23
Hurwitz, S. H.,	*San Francisco*	23
Husband, R. D.,	*Modesto*	34
Huston, J. M.,	*Burlingame*	26
Hutchings, R. K.,	*San Francisco*	23
Hutchinson, W. W.,	*Los Angeles*	10
Hutchison, C. W.,	*Los Angeles*	10
Hyde, R. D.,	*Beverly Hills*	10
Hyland, C. M.,	*Los Angeles*	10
Hyman, S.,	*Los Altos*	23

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NAME	CITY	COUNTY SOCIETY NO.
Ianne, C. L.,	*San Jose*	28
Iki, G. S.,	*Sacramento*	19
Illick, C. R.,	*Santa Paula*	37
Illsley, M. L.,	*Claremont*	10
Imerman, C. P.,	*Hollywood*	10
Imerman, S. W.,	*Hollywood*	10
Imler, H. G.,	*Los Angeles*	10
Ing, C. S.,	*Stockton*	24
Ingalls, A. T.,	*Los Angeles*	10
Ingber, I. S.,	*San Francisco*	23
Ingels, A. E.,	*San Francisco*	23
Ingham, R. O.,	*Colton*	21
Ingham, S. D.,	*Los Angeles*	10
Inghram, H. D.,	*San Bernardino*	21
Ingram, C. H.,	*Fresno*	4
Inman, M. M.,	*Los Angeles*	10
Inman, T. G.,	*San Francisco*	23
Innis, E. C.,	*Newhall*	10
Iriki, W. K.,	*Oakland*	1
Irish, C. W.,	*Los Angeles*	10
Irvine, A. R.,	*Los Angeles*	10
Irvine, R. S.,	*San Francisco*	23
Irwin, J. C.,	*Los Angeles*	10
*Irwin, S. V.,	*Oakland*	1
Isaac, J. P.,	*Glendale*	10
Isoard, M. C.,	*Sacramento*	19
Ito, P. K.,	*Los Angeles*	10
Ivey, E. D.,	*Oakland*	1

— J —

NAME	CITY	COUNTY SOCIETY NO.
Jackson, C. R.,	*Costa Mesa*	16
Jackson, E. A.,	*Atwater*	13
Jackson, J. A.,	*Pasadena*	10
Jackson, L. H.,	*W. Los Angeles*	10
Jacob, H. H.,	*Long Beach*	10
Jacobs, A. M.,	*San Francisco*	23
Jacobs, F. E.,	*San Diego*	22
Jacobs, J.,	*Los Angeles*	10
Jacobs, L. C.,	*San Francisco*	23
Jacobs, L. G.,	*San Francisco*	23
Jacobs, S. N.,	*San Francisco*	23
Jacobson, H. A.,	*Fresno*	4
Jacobson, H. P.,	*Los Angeles*	10
Jacobson, P. N.,	*Oakland*	1
Jacobus, L. R.,	*Berkeley*	1
James, C. A.,	*Fresno*	4
James, C. M.,	*Beverly Hills*	10
James, C. S.,	*Los Angeles*	10
James, L.,	*Fresno*	4
James, M.,	*San Francisco*	23
James, R. J.,	*Los Angeles*	10
James, V. M.,	*Hollywood*	10
Jameson, P. V.,	*Huntington Park*	10
Janes, O. W.,	*Glendale*	10
Jardini, A.,	*Los Angeles*	10
Jeancon, E. C.,	*Los Angeles*	10
Jeffry, D. E.,	*Oakland*	1
Jelte, S. A.,	*Oakland*	1
Jenkins, B. E.,	*Oakland*	1
Jenkins, H. L.,	*Arcata*	5
Jenkins, R. B.,	*Los Angeles*	10
Jenney, E. R.,	*Los Angeles*	10
Jenney, W. C.,	*Vacaville*	32
Jennison, J. E.,	*San Diego*	22
Jensen, O. B.,	*Livermore*	1

*Deceased.

NAME	CITY	COUNTY SOCIETY NO.
Jesberg, S.,	*Los Angeles*	10
Jewel, A. R.,	*Los Angeles*	10
Jewel, R. T.,	*Los Angeles*	10
Jewett, R. A.,	*Los Angeles*	10
Johannes, J. C.,	*Santa Cruz*	29
Johnson, A. L.,	*Taft*	7
Johnson, C. A.,	*Imola*	15
Johnson, C. A.,	*Los Angeles*	10
Johnson, C. E.,	*Long Beach*	10
Johnson, C. F.,	*Oakland*	1
Johnson, C. G.,	*Long Beach*	10
Johnson, C. M.,	*San Francisco*	23
Johnson, C. R.,	*Whittier*	10
Johnson, D. D.,	*Grass Valley*	17
Johnson, E. E.,	*Palo Alto*	28
Johnson, E. D. L.,	*Alhambra*	10
Johnson, E. H.,	*Los Angeles*	10
Johnson, F. T.,	*Monrovia*	10
Johnson, G. M.,	*Los Angeles*	10
Johnson, G. S.,	*San Francisco*	23
Johnson, H. H.,	*San Francisco*	23
Johnson, H. M.,	*Pasadena*	10
Johnson, H. R.,	*Sacramento*	19
Johnson, H. S.,	*Long Beach*	10
Johnson, J. K.,	*Culver City*	10
Johnson, L. C.,	*Salinas*	14
Johnson, M.,	*Los Angeles*	10
Johnson, M. L.,	*Oakland*	1
Johnson, N. P.,	*Stockton*	24
Johnson, O. D.,	*Los Angeles*	10
Johnson, O. F.,	*Sacramento*	19
Johnson, R. H.,	*Los Angeles*	10
Johnson, R. I.,	*Westminster*	16
Johnson, R. L.,	*Corona*	18
Johnson, R. W.,	*San Fernando*	10
Johnson, W. A.,	*Antioch*	3
Johnson, W. E.,	*Santa Barbara*	27
Johnson, W. T.,	*Alhambra*	10
Johnston, E. J.,	*South Pasadena*	10
Johnston, F. R.,	*Oakland*	1
Johnston, H. A.,	*Anaheim*	16
Johnston, J.,	*Los Angeles*	10
Johnston, S. T.,	*Santa Ana*	16
Johnston, W. H.,	*Santa Barbara*	27
Johnstone, E. M.,	*Pasadena*	10
Johnstone, W. A.,	*Hanford*	8
Jones, C. B.,	*Sacramento*	19
Jones, C. P.,	*Grass Valley*	17
Jones, C. R.,	*San Diego*	22
Jones, E. F.,	*Oakland*	1
Jones, E. M.,	*Los Angeles*	10
Jones, E. W.,	*Los Angeles*	10
Jones, G. F.,	*San Francisco*	23
Jones, G. W.,	*Los Angeles*	10
Jones, H. T.,	*Los Angeles*	10
Jones, H. W.,	*Bakersfield*	34
Jones, I. H.,	*Los Angeles*	10
Jones, I. W.,	*Los Angeles*	10
Jones, J. P.,	*Los Angeles*	10
Jones, J. R.,	*Sacramento*	19
Jones, J. W.,	*San Francisco*	23
Jones, K. P.,	*Olive View*	10
Jones, L. E.,	*Roseville*	17
Jones, L. L.,	*Glendale*	10
Jones, M. N.,	*San Francisco*	23
Jones, N.,	*Sacramento*	19
Jones, O. C.,	*Santa Maria*	27
Jones, O. W.,	*San Anselmo*	11
Jones, O. W., Jr.,	*San Francisco*	23
Jones, R. A.,	*San Francisco*	23
Jones, R. B.,	*San Francisco*	23
Jones, R. M.,	*Bakersfield*	7
Jones, R. M.,	*Ventura*	37
Jones, W. A.,	*Arlington*	18
Jones, W. H.,	*Long Beach*	10
Jones, W. H. G.,	*Los Gatos*	28
Jones, Z. G.,	*Long Beach*	10
Jordan, P. A.,	*San Jose*	28
Jorgensen, S. N.,	*San Francisco*	23
Jorgenson, N.,	*Fresno*	4
Josephs, I. L.,	*Los Angeles*	10
Josephs, L.,	*Los Angeles*	10
Josephson, J. B.,	*San Jose*	28
Joyce, T. F.,	*Spadra*	10
Judd, G. E.,	*Los Angeles*	10
Judson, H. A.,	*Los Angeles*	10
Juenemann, G. F.,	*Los Angeles*	10
Julien, A. E.,	*Turlock*	34
Jump, K.,	*San Mateo*	26

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NAME	CITY	COUNTY SOCIETY NO.
Kaelber, A. P.,	*San Francisco*	23
Kaffesleder, L. I.,	*Los Angeles*	10
Kaftan, L. L.,	*Los Angeles*	10
Kahl, C. W.,	*Merced*	13
Kahn, J.,	*Los Angeles*	10
Kahn, M. G.,	*Los Angeles*	10
Kalfus, J. L.,	*Santa Maria*	27
Kalichman, G. S.,	*Santa Monica*	10
Kane, L. M.,	*Los Angeles*	10
Kanner, H. M.,	*Sacramento*	19
Kaplan, H. E.,	*Stockton*	24
Kapp, M. W.,	*San Jose*	28
*Kapp, R. W.,	*San Jose*	28
Kaps, F. O.,	*Santa Ana*	16
Karr, M.,	*Sonora*	24
Karras, R. W.,	*Milwaukee, Wis.*	10
Karshner, R. G.,	*Los Angeles*	10
Katz, B.,	*Los Angeles*	10
Kaufman, B.,	*San Francisco*	23
Kavanagh, M. F.,	*San Francisco*	23

NAME	CITY	COUNTY SOCIETY NO.
Kavinoky, N. R.,	*Los Angeles*	10
Kay, G. L.,	*Redding*	30
Kay, M. M.,	*Shafter*	7
Kay, R.,	*Los Angeles*	10
Kay, W. E., Jr.,	*San Francisco*	23
Kaysen, R.,	*San Diego*	22
Kearney, F. K.,	*Hayward*	1
Kearney, W. B.,	*San Francisco*	23
Keating, V. J.,	*Los Angeles*	10
Keeler, N. S.,	*Oakland*	1
Keenan, A. S.,	*San Francisco*	23
Keeney, M. J.,	*Los Angeles*	10
Kehoe, E. J.,	*San Mateo*	26
Kehr, E. F.,	*Carmel*	14
Keiper, G. F.,	*Beverly Hills*	10
Keith, C. F.,	*Williams*	38
Kelker, G. D.,	*San Luis Obispo*	25
Kell, F. B.,	*San Bernardino*	21
Keller, F.,	*Los Angeles*	10
Keller, S. H.,	*Riverside*	18
*Kelley, G. A.,	*Bridgeport*	4
Kelley, H. W.,	*Oakland*	1
Kelley, J. W.,	*Los Angeles*	10
Kellogg, E. C.,	*Los Angeles*	10
Kelly, A. L.,	*Oceanside*	22
Kelly, E. E.,	*Pomona*	10
Kelly, T. H.,	*San Francisco*	23
Kelsey, T. W.,	*Sacramento*	19
Kemper, C. A. S.,	*Escondido*	22
Kendall, O. J.,	*San Diego*	22
Kennedy, C. R.,	*Paso Robles*	25
Kennedy, K. E.,	*Oakland*	1
Kennell, L. A.,	*San Diego*	22
Kennicott, R. H.,	*Los Angeles*	10
Kerlan, M.,	*Beverly Hills*	10
Kern, B. C.,	*Jackson*	19
Kerns, C. L.,	*Pittsburg*	3
Kerr, W. J.,	*San Francisco*	23
Kersten, E. H. W.,	*Anaheim*	16
Kersten, H. M.,	*Los Angeles*	10
Keser, M. D.,	*Richmond*	3
Kessler, E. E.,	*Los Angeles*	10
Key, W. A.,	*San Mateo*	26
Kibbe, M. E.,	*Oakland*	1
Kibby, S. V.,	*Los Angeles*	10
Kidder, F. W. K.,	*Los Angeles*	10
Kiefer, H. A.,	*Los Angeles*	10
Kiger, W. H.,	*Los Angeles*	10
Kilbourne, N. J.,	*Los Angeles*	10
Kilcher, C. W.,	*Sacramento*	19
Kilduff, R.,	*Groville*	2
Kile, R. F.,	*San Francisco*	23
Kilfoy, E. J.,	*Los Angeles*	10
Kilgore, A. M.,	*Hollywood*	10
Kilgore, A. R.,	*San Francisco*	23
Kilgore, E. S.,	*San Francisco*	23
Kilgore, G. L.,	*San Diego*	22
Kimberlin, L. O.,	*San Francisco*	23
Kindall, C. E.,	*Los Angeles*	10
Kindall, L. E.,	*Oakland*	1
Kindopp, D. M.,	*Auburn*	17
King, C. S.,	*Los Angeles*	10
King, D. E.,	*San Francisco*	23
King, E. B.,	*Arroyo Grande*	25
King, E. H.,	*Tujunga*	10
King, H. R.,	*Winters*	38
King, J. A.,	*Ojai*	37
King, J. C. E.,	*San Diego*	22
King, J. M.,	*Los Angeles*	10
King, N. C.,	*Los Angeles*	10
King, W.,	*Chico*	2
Kinney, L. C.,	*San Diego*	22
Kinney, M. A. J.,	*Los Angeles*	10
Kinney, P. B.,	*Pasadena*	10
Kindopp, D. M.,	*Colfax*	17
Kinslow, F. A.,	*San Francisco*	23
Kinzer, E. E.,	*South Pasadena*	10
Kirby, J. M.,	*Bakersfield*	8
Kirchner, A. A.,	*Los Angeles*	10
Kirchner, H. J.,	*Los Angeles*	10
Kirchoff, J. J.,	*Los Angeles*	10
Kirk, A. W.,	*San Francisco*	23
Kirk, J. H.,	*Palo Alto*	28
Kirk, M. E.,	*Oakland*	1
Kirkle, O. L.,	*Napa*	15
Kirkpatrick, J. E.,	*Los Angeles*	10
Kirkpatrick, J. H.,	*Los Angeles*	10
Kirksey, M. M.,	*San Francisco*	23
Kirsch, R. L.,	*Pasadena*	10
Kirwin, J. J.,	*Ukiah*	12
Kiser, A. E.,	*Imola*	15
Kiskadden, W. S.,	*Los Angeles*	10
Kistinger, W. F.,	*Santa Ana*	16
Kistler, R. H.,	*San Francisco*	23
Kitagawa, K. J.,	*San Francisco*	23
Kitsuda, F. Y.,	*Sacramento*	19
Kjaerbye, C. P. H.,	*Fresno*	4
Klein, I.,	*Los Angeles*	10
Klein, J. M.,	*No. Hollywood*	10
Klick, J. J.,	*Sacramento*	19
Kliman, F. E.,	*Los Angeles*	10
Kling, D. H.,	*Los Angeles*	10
Klotz, N. C.,	*San Francisco*	23
Kluss, E. R.,	*Santa Barbara*	27
Klussman, H. O. G. T.,	*San Francisco*	23
Kneeshaw, R. S.,	*San Jose*	28
Knight, L. C.,	*San Francisco*	23
Knoll, R. F.,	*Los Angeles*	10
Knoph, B. W.,	*Brentwood*	24
Knorp, W. F.,	*Burlingame*	26
Knorr, L. R.,	*Concord*	3

NAME	CITY	COUNTY SOCIETY NO.
Knox, C. R.,	*El Cajon*	22
Kocher, R. A.,	*Carmel*	14
Koda, K.,	*Watsonville*	29
Koebig, W. C. S.,	*Los Angeles*	10
Koefod, H. O.,	*Santa Barbara*	27
Koehler, A. E.,	*Santa Barbara*	27
Koenecke, H. J,	*Salinas*	14
Koepke, F. H.,	*Watsonville*	29
Koford, H.,	*Oakland*	1
Kohlenberger, C. F. W.,	*Fullerton*	16
Kohlhase, L. H.,	*Los Angeles*	10
Kohlmoos, H. J.,	*Oakland*	1
Kohn, F.,	*Tulare*	36
Kolb, H. J.,	*Oakland*	1
Kolda, F. O.,	*Alhambra*	10
Kolisch, J. M.,	*Los Angeles*	10
Konantz, O. F.,	*Hollywood*	10
Konigmacher, A. H.,	*Fresno*	4
Konttas, P. V.,	*Santa Rosa*	33
Koplin, H.,	*Los Angeles*	10
Korshet, M.,	*San Francisco*	23
Kortheuer, K. H.,	*Calexico*	6
Kosky, A. A.,	*Santa Monica*	10
Kosky, A. W.,	*Santa Monica*	10
Kosteritz, E.,	*Berkeley*	1
Kracaw, F. C.,	*Oakland*	1
Kraft, R. W.,	*Pasadena*	10
Krahulik, E. J.,	*Hollywood*	10
Kramar, L. G.,	*Fortuna*	5
Krause, R. A.,	*Los Angeles*	10
Kremers, E. D.,	*Pasadena*	10
Kress, G. H.,	*Los Angeles*	10
Kretzschmar, K. E.,	*Los Angeles*	10
Kristensen, W. A.,	*Los Angeles*	10
Kreutzmann, H. A. R.,	*San Francisco*	23
Kroener, W. F.,	*Whittier*	10
Kroger, W. P.,	*Los Angeles*	10
Krohn, H. N.,	*Los Angeles*	10
Kroll, F. W.,	*San Francisco*	23
Krout, B. M.,	*Stockton*	24
Krueger, A. P.,	*Berkeley*	23
Krugmeier, C. E.,	*Los Angeles*	10
Krull, F.,	*Sacramento*	19
Kruse, F. H.,	*San Francisco*	23
Kruse, F. L.,	*San Francisco*	23
Kryder, G. B.,	*Glendale*	10
Kuder, W. S.,	*Oakland*	1
Kuhlman, M. B. K.,	*Mid Pines*	1
Kuhlmann, F. W.,	*Long Beach*	10
Kuhn, O. E.,	*Stockton*	15
Kulaev, A. A. M.,	*San Francisco*	23
Kulchar, G. V.,	*San Francisco*	23
Kurtz, C.,	*Los Angeles*	10
Kusel, E. A.,	*Oroville*	2
Kutzmann, A. A.,	*Los Angeles*	10
Kyddson, T. W.,	*Linden*	24

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NAME	CITY	COUNTY SOCIETY NO.
Lacayo, J. R.,	*Los Angeles*	10
Lacey, J. M.,	*Los Angeles*	10
Lacey, L. E.,	*Oakland*	1
Lacey, M. J.,	*Albany*	1
Lachman, G. S.,	*San Francisco*	23
Lackey, H. J.,	*Oakland*	1
Lackner, L.,	*San Jose*	28
Lacoe, J. R.,	*Los Angeles*	10
Lafontaine, E. C.,	*San Francisco*	23
Lagan, E.,	*San Francisco*	23
Laist, O.,	*San Francisco*	23
Lajole, R. J.,	*Los Angeles*	10
Lake, T. O.,	*Berkeley*	1
Lakey, W. J.,	*Canoga Park*	10
Lamb, E. J.,	*Santa Barbara*	27
Lamb, L. M.,	*Oakland*	1
Lambert, H. W.,	*Oakland*	1
Lambuth, R. W.,	*Santa Barbara*	27
La Mont, W.,	*Beverly Hills*	10
La Motte, L. A. J.,	*Los Angeles*	10
Lamson, M.,	*Palo Alto*	28
Lamson, R. W.,	*Los Angeles*	10
Lancaster, J. S.,	*Torrance*	10
Landegger, G. P.,	*Los Angeles*	10
Landis, C. C.,	*Chico*	2
Lando, H.,	*Los Angeles*	10
Lando, M. E.,	*Oakland*	1
Landon, G. S.,	*San Bernardino*	21
Landrock, G. M.,	*Philadelphia, Pa.*	11
Lane, C. R.,	*Los Angeles*	10
Lane, C. W.,	*Coronado*	22
Lane, J. A.,	*Eureka*	5
Lang, J. H.,	*Fullerton*	16
Langan, A. J.,	*San Pedro*	10
Langdon, E. E.,	*Santa Monica*	10
Langdon, S. W. R.,	*Stockton*	24
Lange, H. V.,	*Bakersfield*	8
Langer, J.,	*Hilt*	31
Langley, R. W.,	*Los Angeles*	10
Langlois, L. J.,	*San Diego*	22
Langnecker, H. L.,	*San Francisco*	23
Langstroth, L.,	*San Francisco*	23
Lanphere, G. H.,	*Los Angeles*	10
Larkey, J.,	*Oakland*	1
Larner, T. E.,	*Marysville*	39
Larsen, A. E.,	*San Francisco*	23
Larsen, E.,	*Los Angeles*	10
Larsen, J. W.,	*Paso Robles*	25
Larsen, L. H.,	*Point Reyes*	11
Larson, A. E.,	*Los Angeles*	10
Larson, A. H.,	*Los Angeles*	10
Larson, C. F.,	*Sausalito*	11
Larson, E. A.,	*Kingsburg*	4
Larson, E. E.,	*Los Angeles*	10
Lartigau, A. J.,	*San Francisco*	23
Lasswell, B. J.,	*Quincy*	9
Laton, G. P.,	*Los Angeles*	10
Latta, S. E.,	*Stockton*	24
Laubersheimer, G. A.,	*Los Angeles*	10
Lauder, C. H.,	*Los Angeles*	10
Lauer, C. A.,	*Long Beach*	10
Laughlin, T. J.,	*Hollywood*	10
Lavery, W. A.,	*Loyalton*	17
Law, C. H.,	*Weaverville*	30
Lawler, P. W.,	*Victorville*	21
Lawler, W. H.,	*Salinas*	14
Lawrence, W.,	*San Francosco*	23
Lawson, J. D.,	*Sacramento*	19
Lawson, T. C.,	*Oakland*	1
Lawyer, P. C.,	*Inglewood*	10
Layman, M. H.,	*San Francisco*	23
Lazard, E. M.,	*Los Angeles*	10
Lazelle, H. G.,	*La Jolla*	22
Leach, C. W.,	*Kelseyville*	12
Leach, W. O.,	*Glendale*	10
Leachman, R. S.,	*Vallejo*	32
Leake, N. A.,	*Torrance*	10
Leake, W. H.,	*Los Angeles*	10
Leavitt, A. S.,	*Los Angeels*	10
Leavitt, F. J.,	*Los Angeles*	10
Le Baron, R. O.,	*Talmage*	12
Ledford, R. M.,	*San Diego*	22
Ledyard, C. C.,	*Los Angeles*	10
Lee, D.,	*San Jose*	28
Lee, E. C.,	*San Diego*	22
Lee, F. J.,	*Santa Monica*	10
Lee, F. W.,	*Sacramento*	19
Lee, H.,	*San Jose*	28
Lee, L. H.,	*Los Angeles*	10
Lee, R. V. A.,	*Palo Alto*	28
Leef, E.,	*San Francisco*	23
Leet, N. B.,	*Oakland*	1
Leet, R. S.,	*Oakland*	1
Leete, C. M.,	*Pasadena*	10
Leffingwell, F. E.,	*Montebello*	10
Lefler, A. B.,	*Los Angeles*	10
Leftwich, O. T.,	*Oakland*	1
Legge, R. T.,	*Berkeley*	1
Leggitt, R. C.,	*Glendale*	10
Leggo, R. C.,	*Crockett*	3
Leidig, L. R.,	*Porterville*	36
Leimbach, J. H.,	*Isleton*	18
Lemere, H. B.,	*Beverly Hills*	10
Lenker, W. D.,	*San Bernardino*	21
Lennon, M. B.,	*San Francisco*	23
Lennon, T. J.,	*San Francisco*	23
Leon, T. D.,	*Concord*	3
Leonard, A. T.,	*San Francisco*	23
Leonard, E. M.,	*San Francisco*	23
Leonard, J. V.,	*San Francisco*	23
Leonard, W. E.,	*Los Angeles*	10
Lepper, L. E.,	*Los Angeles*	10
Lerned, M. B.,	*Pasadena*	10
Lesem, A. M.,	*San Diego*	22
Levin, H. A.,	*Los Angeles*	10
Levin, W. N.,	*Avenal*	4
Levison, C. G.,	*San Francisco*	23
Levitin, J.,	*San Francisco*	23
Leviton, H. I.,	*Los Angeles*	10
Levy, E. I.,	*San Diego*	23
Levy, J. J.,	*Los Angeles*	4
Levy, M. L.,	*Los Angeles*	10
Lewis, C. E.,	*Auburn*	17
Lewis, C. H.,	*Santa Monica*	10
Lewis, E. R.,	*Los Angeles*	10
Lewis, J. D.,	*Santa Barbara*	27
Lewis, K.,	*Beverly Hills*	10
Lewis, L. R.,	*Los Angeles*	10
Lewis, M. L.,	*Petaluma*	33
Lewis, N. H.,	*Hollywood*	10
Lewis, S. A.,	*Hollywood*	10
Libby, A. A.,	*Pasadena*	10
Lien, F. O.,	*Merced*	13
Liles, L. M.,	*Watsonville*	29
Lilienerantz, G. H.,	*Oakland*	1
Liljedahl, E. N.,	*Los Angeles*	10
Liljencrantz, E.,	*San Francisco*	1
Lilley, W. E.,	*Merced*	13
Linde, F. G.,	*San Francisco*	23
Lindberg, A. L.,	*Los Angeles*	10
Lindberg, A. W.,	*Los Angeles*	10
Lindemulder, F. G.,	*San Diego*	22
Lindquist, C. A.,	*Los Angeles*	10
Lindsay, C. V.,	*Encinitas*	22
Lindsay, H. C. L.,	*Pasadena*	10
Lindsay, W. K.,	*Sacramento*	19
Lindsley, St. C. R.,	*Los Angeles*	10
Lineer, A. S.,	*Los Angeles*	10
Linhart, L. R.,	*Los Angeles*	10
Linn, J. L.,	*Glendale*	10
Linthicum, F. H.,	*Los Angeles*	10
Lipkis, A.,	*Los Angeles*	10
Lipp, M. J.,	*Sacramento*	19
Lippman, M. H.,	*San Francisco*	23
Lipsett, E. M.,	*San Francisco*	23
Lipson, B.,	*Los Angeles*	10
Lipson, I. M.,	*Visalia*	36
Lischner, H.,	*Los Angeles*	10
Lisser, H.,	*San Francisco*	23
Lissner, H. H.,	*Los Angeles*	10
Lista, L. J.,	*Mt. Shasta*	31
Liston, E.,	*Palo Alto*	28
Litchfield, H.,	*Los Angeles*	10
Litle, E. W.,	*Los Angeles*	10
Little, R. P.,	*Santa Paula*	37
Lobingier, A. S.,	*Los Angeles*	10
Lockwood, M. S.,	*National City*	22
Loe, H. D.,	*Oakland*	1
Loehr, B. E.,	*San Jose*	28
Logan, N. H.,	*Oakland*	1
Logsdon, R. O.,	*San Diego*	22
Lohmann, H. G.,	*Oakland*	1
Lohse, J. L.,	*Oakland*	1
Loizeaux, E. S.,	*San Diego*	22
Lokrantz, S. R.,	*Los Angeles*	10
Lonergan, L.,	*Loma Linda*	21
Long, H. E.,	*Berkeley*	1
Long, S. C.,	*Bakersfield*	7
Loomis, F. M.,	*Oakland*	1
Loomis, N. M.,	*Yuba City*	39
Looser, R. V.,	*Hollywood*	10
Lopez, E. A.,	*San Leandro*	1
Lopizich, I. J.,	*Los Angeles*	10
Lord, D. C.,	*Chico*	2
Lordan, J. P.,	*Los Angeles*	10
Lorentz, R., Jr.,	*San Francisco*	23
Lorenz, H. E.,	*Sacramento*	19
Loring, F. W.,	*Glendale*	10
Loughlin, E. L.,	*Los Angeles*	10
Lounsberry, C. R.,	*San Diego*	22
Loutzenheiser, J. J.,	*San Francisco*	23
Love, A. A.,	*Los Angeles*	10
Love, C. A., Jr.,	*San Bernardino*	21
Love, E. C.,	*Calistoga*	15
Lovejoy, E. D.,	*Los Angeles*	10
Lovely, J. P.,	*San Jose*	28
Loveren, G. S.,	*Santa Barbara*	27
Low, T. C.,	*Los Angeles*	10
Lowe, F. A.,	*San Francisco*	23
Lowman, C. L. R.,	*Los Angeles*	10
Lubin, M. L.,	*San Francisco*	23
Lucas, W.,	*Los Angeles*	10
Lucas, W. P.,	*San Francisco*	23
Lucas, W. S.,	*Richmond*	3
Lucey, D. D.,	*Los Angeles*	10
Luckie, J. B.,	*Pasadena*	10
Luechauer, K. D.,	*Fresno*	4
Lum, D. D.,	*Alameda*	1
Lum, P. A.,	*Carmel*	13
Lumley, C. G.,	*Huntington Park*	10
Lumsden, A. G.,	*Petaluma*	33
Lund, Le V.,	*Los Angeles*	10
Lundegaard, E. E.,	*Weimar*	17
Lundegaard, E. M.,	*Oakland*	1
Lundquist, D. T.,	*Palo Alto*	28
Lunsford, C. J.,	*Oakland*	1
Lurie, S. A.,	*Los Angeles*	10
Lusignan, H. R.,	*Monterey*	14
Luton, G. R.,	*Santa Barbara*	27
Lyle, A. G.,	*San Francisco*	23
Lyman, G. D.,	*San Francisco*	23
Lyman, T.,	*Sacramento*	19
Lynch, D. A.,	*Omaha, Nebraska*	10
Lynch, E. C.,	*Montebello*	10
Lynch, F. W.,	*San Francisco*	23
Lynch, W. P.,	*Stockton*	24

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NAME	CITY	COUNTY SOCIETY NO.
Mabee, M.,	*Santa Ana*	16
MacColl, D. R.,	*Los Angeles*	10
MacCoy, W. E.,	*Ventura*	37
MacCracken, W. B.,	*Berkeley*	1
MacDonald, F. A.,	*Sacramento*	19
MacDonald, R. P.,	*Los Angeles*	10
Mace, L. S.,	*San Francisco*	23
Macfarlane, D. A.,	*Berkeley*	1
Mack, A. E.,	*Glendale*	10
Mack, C. W.,	*Livermore*	1
MacKay, C. H.,	*Los Angeles*	10
Mackay, J. G.,	*Auburn*	17
Mackenzie, W. W.,	*Hollywood*	10
Mackey, J. G.,	*San Fernando*	10
MacKinnon, D. S.,	*W. Los Angeles*	10
MacLafferty, N. C.,	*Soquel*	29
MacLean, H. G.,	*Oakland*	1
MacLean, J.,	*Los Angeles*	10
Macleish, A. C.,	*Los Angeles*	10
Maclennan, A. L.,	*Pasadena*	10
MacMillan, D. W.,	*Los Angeles*	10
MacMillan, H. A.,	*Long Beach*	10
Macomber, E. B.,	*Burlingame*	26
Macomber, H. W.,	*Burlingame*	26
Macpherson, D. G.,	*San Francisco*	23
Macpherson, F. L.,	*San Diego*	22
Macpherson, J. D.,	*San Diego*	22
Macpherson, W. E.,	*Loma Linda*	21
*MacRae, A. D.,	*San Francisco*	23
Madden, T. F.,	*Fresno*	4
Madsen, L. J.,	*Santa Monica*	10
Magan, P. T.,	*Los Angeles*	10
Magan, W. P.,	*Covina*	10
Magee, H. R.,	*Los Angeles*	10
Maghy, C. A.,	*Los Angeles*	10
Maginn, E. F.,	*Los Angeles*	10
Magoon, L. B.,	*San Jose*	28
Magrath, W. A. S.,	*Oakland*	1
Mahan, L. B.,	*San Diego*	22
Mahon, E. J.,	*San Francisco*	23
Mahoney, L. E.,	*Santa Monica*	10
Main, R. C.,	*Santa Barbara*	27
Maisler, S.,	*San Francisco*	23
Majer, R. G.,	*Los Angeles*	10
Majors, E. A.,	*Oakland*	1
Makinson, F. R.,	*Oakland*	1

*Deceased.

NAME	CITY	SOCIETY NO. COUNTY
Malcolmson, O. K.,	*Santa Monica*	10
Malis, S.,	*Los Angeles*	10
Malkin, G. M.,	*Huntington Park*	10
Mallery, J. H.,	*Trail, Oregon*	22
Malmgren, G. E.,	*Los Angeles*	10
Malone, M. C.,	*San Francisco*	23
Malone, W. M.,	*San Francisco*	23
Maloney, H. P.,	*Oakland*	1
Maloney, W. M.,	*Los Angeles*	10
Mandel, G.,	*Los Angeles*	10
Maner, G. D.,	*Los Angeles*	10
Mangan, P. J.,	*San Francisco*	23
Mann, H. H.,	*Los Angeles*	10
Mann, V. L.,	*Philadelphia, Pa.*	10
Mannerstedt, G.,	*Oakland*	1
Manning, T. P.,	*Los Angeles*	10
Manning, W. R.,	*Fillmore*	37
Manny, M. A.,	*Pasadena*	10
Mansfeldt, J. H.,	*San Francisco*	23
Manson, G.,	*Fresno*	4
Manson, R. M.,	*Hayward*	1
Mantle, V. M.,	*Los Angeles*	10
Manton, W. W.,	*Pasadena*	10
Manuel, M. M.,	*Pasadena*	10
March, H. N.,	*Grass Valley*	17
Marchildon, J. W.,	*Los Angeles*	10
Marcus, H.,	*San Francisco*	23
Marcus, S. M.,	*Los Angeles*	10
Mardis, B. A.,	*San Francisco*	23
Mark, A. E.,	*Hollywood*	10
Markel, H. H.,	*San Francisco*	23
Markolf, H. F.,	*Pasadena*	10
Marks, M.,	*Long Beach*	10
Marks, S. H.,	*Pittsburg*	3
Markthaler, E. L.,	*Santa Barbara*	27
Marnell, F. S.,	*Stockton*	24
Maroon, J. L.,	*Santa Ana*	16
Marquis, C. E.,	*Oakland*	1
Marr, J. B.,	*Covina*	10
Marsden, S. A.,	*Santa Ana*	16
Marsh, C.,	*Sebastopol*	33
Marsh, O. G.,	*San Diego*	22
Marshall, B. M.,	*Eureka*	5
Marshall, H. K.,	*Glendale*	10
Marshall, J. M.,	*San Luis Obispo*	25
Marshall, O. C.,	*Watsonville*	29
Marston, C. B.,	*San Rafael*	11
Marston, H. E.,	*San Rafael*	11
Martell, B. S.,	*Santa Ana*	16
Martin, A. T.,	*Los Angeles*	10
Martin, G. S.,	*Susanville*	9
Martin, H. W.,	*Los Angeles*	10
Martin, J. P.,	*Oakland*	1
Martin, L. E.,	*Los Angeles*	10
Martin, M. L.,	*Los Angeles*	10
Martin, P. T.,	*San Jose*	28
Martin, R. C.,	*San Francisco*	23
Martin, R. C.,	*San Bernardino*	21
Martine, A.,	*La Jolla*	22
Martins, S. M.,	*Los Angeles*	10
Martyn, G.,	*Los Angeles*	10
Marx, R.,	*Los Angeles*	10
Marxmiller, H. G.,	*Los Angeles*	10
Mason, B. E.,	*Laguna Beach*	16
Mason, B. S.,	*San Jose*	28
Mason, C. V.,	*Livermore*	1
Mason, H. M.,	*Los Angeles*	10
Mason, M. I.,	*San Jose*	28
Mason, V. R.,	*Los Angeles*	10
Massey, B. D.,	*Pasadena*	10
Masters, E. J.,	*San Francisco*	23
Masterson, J. R.,	*Berkeley*	1
Mathé, C. P.,	*San Francisco*	23
Mather, R. W.,	*Los Angeles*	10
Mathes, M. E.,	*San Francisco*	23
Mathews, S. S.,	*Los Angeles*	10
Mathewson, C.,	*Fresno*	4
Mathewson, C., Jr.,	*San Francisco*	23
Mathias, C. M.,	*Tulare*	36
Mathiasen, H.,	*Oakland*	1
Matlock, T. T.,	*Wasco*	7
Matousek, W. J.,	*Glendale*	10
Matsumura, K.,	*San Francisco*	23
Mattison, C. W.,	*Los Angeles*	10
Mattison, S. J.,	*Pasadena*	10
Matzger, E.,	*San Francisco*	23
Mawdsley, H. L.,	*San Mateo*	26
Maxson, E. S.,	*Alhambra*	10
Maxwell, A. H.,	*Sausalito*	11
Maxwell, R. E.,	*Modesto*	34
May, H. C.,	*Los Angeles*	10
May, J. A.,	*San Diego*	22
May, L. B.,	*Bakersfield*	7
Mayfield, C.,	*Long Beach*	10
Mayman, E.,	*Modesto*	34
Maynard, M. T-R.,	*San Jose*	28
Mays, A. H.,	*Sausalito*	11
McAllister, H. R.,	*Taft*	7
McAllister, O. O. T.,	*Oakland*	1
McAnally, J. F.,	*Roseville*	17
McArthur, D. D.,	*Los Angeles*	10
McArthur, P. R.,	*Los Angeles*	10
McAtee, J. S.,	*Los Angeles*	10
McAuley, J.,	*Santa Ana*	16
McBride, R. W.,	*Burlingame*	26
McBurney, B. A.,	*Pomona*	10
McBurney, R. D.,	*Los Angeles*	10
McCallister, C. H.,	*Los Angeles*	10
McCann, D. F.,	*McCloud*	31
McCann, F. E.,	*Monrovia*	10
McCarthey, A. M.,	*Los Angeles*	10
McCarthy, F. J.,	*San Francisco*	23
McCarthy, H. L.,	*Los Angeles*	10
McCarthy, J. B.,	*Carmel*	14
McCarty, H.,	*Agnew*	28
McCarty, R. B.,	*Riverside*	18
McCausland, W. S.,	*Chula Vista*	22
McChesney, G. J.,	*San Francisco*	23
McCleave, T. C.,	*Berkeley*	1
McClelland, E. S.,	*Los Angeles*	10
McClendon, S. J.,	*San Diego*	22
McClure, G.,	*Oakland*	1
McClure, J. C.,	*Lindsay*	36
McClure, J. L.,	*San Francisco*	23
McClurkin, A. A.,	*Los Angeles*	10
McColl, J. M.,	*San Diego*	22
McColl, W. F.,	*San Diego*	22
McCombs, V. J.,	*Los Angeles*	10
McConnell, J. B.,	*San Diego*	22
McConnell, O. G.,	*San Jose*	28
McCool, J. L.,	*San Francisco*	23
McCool, W. F.,	*Los Angeles*	10
McCoskey, G.,	*Stockton*	24
McCoy, C. A.,	*Los Angeles*	10
McCoy, E. T.,	*Los Angeles*	10
McCradie, R. D.,	*Oakland*	1
McCrea, F. R.,	*Long Beach*	10
McCue, J. E.,	*Crows Landing*	34
McCullough, F. E.,	*Oakland*	1
McCullough, J. M.,	*Crockett*	3
McCuskey, C. F.,	*Los Angeles*	10
McDonald, A. C.,	*Huntington Park*	10
McDonald, J.,	*San Francisco*	23
McDonnell, C. H.,	*Sacramento*	19
McDowell, B. E.,	*Merced*	13
McElhinney, P. P. B.,	*Long Beach*	10
McEvers, A. E.,	*Los Angeles*	10
McFarlane, A. H.,	*Mountain View*	28
McGarvey, H.,	*Atascadero*	25
McGavack, T. H.,	*San Francisco*	23
McGee, R. P.,	*Los Angeles*	10
McGehee, W. H.,	*Fresno*	4
McGibbon, D.,	*Los Angeles*	10
McGill, P. R.,	*Hollywood*	10
McGinnis, J. J.,	*New York*	23
McGinty, A. T.,	*San Jose*	28
McGovney, R. B.,	*Santa Barbara*	27
McGranahan, J. H.,	*Long Beach*	10
McGrath, A. K.,	*Sonoma*	15
McGuire, F. A.,	*Stockton*	24
McGuire, J. B.,	*Mt. Shasta*	31
McGuire, T. E.,	*Burbank*	10
McGurk, R. T.,	*Stockton*	24
McHugh, J. A.,	*Stockton*	24
McHugh, P. H.,	*Stockton*	24
McHugh, T. R.,	*Los Angeles*	10
McIntosh, A. M.,	*Berkeley*	1
McKee, C. B.,	*Sacramento*	19
McKee, E. N.,	*Eagle Rock*	10
McKee, K. S.,	*Bakersfield*	7
McKee, W. C.,	*Los Angeles*	10
McKeehan, G. O.,	*Los Angeles*	10
McKeever, F. M.,	*Los Angeles*	10
McKellar, J. H.,	*Pasadena*	10
McKelvy, R. W.,	*Los Angeles*	10
McKenna, W. J.,	*Los Angeles*	10
McKenney, P. W.,	*Alturas*	9
McKenzie, C. R.,	*Oakland*	1
McKenzie, R. B.,	*San Francisco*	23
McKibbin, J.,	*Los Angeles*	10
McKinnon, A. A.,	*Placerville*	19
McKinnon, D. D.,	*Los Angeles*	10
McKnight, W. B.,	*Portola*	9
McLain, L. C.,	*Bakersfield*	7
McLaughlin, R. C.,	*Los Angeles*	10
McLaughlin, T. H.,	*Hollywood*	10
McLean, D.,	*Sacramento*	19
McLeish, A. H.,	*Yountville*	15
McLellan, G. H.,	*San Diego*	22
McLeod, F. L.,	*Los Angeles*	10
McLeod, J. H.,	*Santa Rosa*	33
McManus, F. P.,	*Esparto*	38
McMeekin, H. R.,	*Lynwood*	10
McMillan, E. H.,	*Pasadena*	10
McMurdo, P. F.,	*San Francisco*	23
McMurtry, M. S.,	*Clovis*	4
McNab, T. R.,	*Los Angeles*	10
McNamara, D. H.,	*Santa Barbara*	27
*McNamara, T. M., Jr.,	*Bakersfield*	7
McNaught, J. B.,	*San Francisco*	23
McNeil, D.,	*Sacramento*	19
McNeil, H. G.,	*Los Angeles*	10
McNeil, W. T.,	*Stockton*	24
McNeile, L. G.,	*Los Angeles*	10
McNeile, O. M.,	*Los Angeles*	10
McNulty, A. H.,	*San Francisco*	23
McPharlin, J. H.,	*Salinas*	14
McPhee, V. C.,	*San Francisco*	23
McPheeters, E. R.,	*Modesto*	34
McPherson, M. D.,	*Santa Cruz*	29
McQuade, J.,	*San Francisco*	23
McRae, C. C.,	*San Francisco*	23
McReynolds, R. P.,	*Los Angeles*	10
McVicker, H. R.,	*Weed*	31
McWhirter, W. L.,	*Centerville*	1
Meade, F. J.,	*Los Angeles*	10
Meads, A. M.,	*Oakland*	1
Meals, R. W.,	*Los Angeles*	10
Means, P. C.,	*Santa Barbara*	27
Meherin, J. M.,	*San Francisco*	23
Mehlin, G. B.,	*San Diego*	22
Mehrmann, H. B.,	*Oakland*	1
Meininger, W. M.,	*San Francisco*	23
Meland, O. N.,	*Los Angeles*	10
Melkonian, L.,	*Gilroy*	28
Mellinger, W. J.,	*Santa Barbara*	27
Mendelsohn, L.,	*Saratoga*	28
Meneray, P. A.,	*Santa Rosa*	33
Mensor, M. C.,	*San Francisco*	23
Mentzer, M. J.,	*San Francisco*	23
Mentzer, S. H.,	*San Francisco*	23
Meredith, H. H.,	*Oakland*	1
Merrill, B. E.,	*Oakland*	1
Merrill, E. R.,	*Santa Barbara*	27
Merrill, H. P.,	*Los Angeles*	10
Merrill, J. A.,	*Monterey*	14
Merrill, R. E.,	*Burbank*	10
Merrithew, E. W.,	*Martinez*	3
Mettier, S. R.,	*San Francisco*	23
Meuser, A. H.,	*Corning*	35
Meyenberg, W. D.,	*Salinas*	14
Meyer, A. J.,	*Glendale*	10
Meyer, H.,	*San Francisco*	23
Meyer, W. F.,	*San Diego*	22
Meyers, E. L.,	*Chico*	2
Meyers, E. M.,	*Oakland*	1
Michael, L.,	*San Leandro*	1
Michael, P. P.,	*Oakland*	1
Michelson, L.,	*San Francisco*	23
Michelson, P. D.,	*San Francisco*	23
Mikels, B. M.,	*Long Beach*	10
Mikels, F. M.,	*Palms*	10
Miles, R. H.,	*Alameda*	1
Miles, W. L.,	*Los Angeles*	10
Milholland, W. G.,	*Fresno*	4
Miller, A.,	*San Rafael*	11
Miller, A. V.,	*Porterville*	36
Miller, A. W.,	*Riverside*	18
Miller, C. D.,	*Glendale*	10
Miller, C. M., Jr.,	*Olive View*	10
Miller, D. G.,	*Los Angeles*	10
Miller, E. P.,	*Riverside*	18
Miller, F. F.,	*San Diego*	22
Miller, F. W.,	*Los Angeles*	10
Miller, H.,	*Los Angeles*	10
Miller, H. A.,	*Alameda*	1
Miller, H. E.,	*San Francisco*	23
Miller, H. R.,	*Chino*	21
Miller, I. S.,	*Colton*	21
Miller, J. E.,	*Los Angeles*	10
Miller, J. J., Jr.,	*San Francisco*	23
Miller, L. G.,	*Imola*	15
Miller, N.,	*Porterville*	36
Miller, P. D.,	*Dinuba*	36
Miller, R. B.,	*Glendale*	10
Miller, R. F.,	*Los Angeles*	10
Miller, R. R.,	*Pasadena*	10
Miller, R. W.,	*Los Angeles*	10
Miller, S. J.,	*Long Beach*	10
Miller, T.,	*San Diego*	22
Miller, T. K.,	*Patton*	21
Miller, W. J.,	*Los Angeles*	10
Miller, W. McC.,	*Auburn*	17
Milliken, W. P.,	*Oakland*	1
Mills, L.,	*Los Angeles*	10
Mills, W.,	*Oakland*	1
Millspaugh, W. P.,	*Los Angeles*	10
Millzner, R. J.,	*San Francisco*	23
Milo, H. W.,	*Mountain View*	28
Milton, J. T.,	*San Diego*	22
Minaker, A. J.,	*San Francisco*	23
Miner, L. L.,	*Los Angeles*	10
Minna, J. B.,	*Boston, Mass.*	6
Misch, H. B.,	*Los Angeles*	10
Missall, A. S.,	*Santa Maria*	27
Mitchell, C. O.,	*Fresno*	4
Mitchell, H. H.,	*Oakland*	1
Mitchell, W. E.,	*Berkeley*	1
Mizel, M. L.,	*San Francisco*	23
Mizener, M.,	*Southgate*	10
Mock, D. C.,	*Redlands*	21
Modern, F. S.,	*Los Angeles*	10
Moffat, W. McK.,	*Santa Barbara*	27
Moffitt, E. J.,	*Los Angeles*	10
Moffitt, H. C.,	*San Francisco*	23
Moffitt, T. W.,	*Hollywood*	10
Mogan, R. F.,	*Los Angeles*	10
Mohun, C. C., Jr.,	*San Francisco*	23
Mohun, M.,	*San Mateo*	26
Molgaard, J.,	*San Francisco*	26
Molitor, N.,	*San Diego*	22
Mollath, A. L.,	*Guadalupe*	27
Molony, W. R.,	*Los Angeles*	10
Molony, W. R., Jr.,	*Los Angeles*	10
Monson, L. P.,	*San Francisco*	1
Montalvan, J.,	*Oakland*	1
Monteith, R. F.,	*Redwood City*	26
Montgomery, C. H.,	*Los Angeles*	10
Montgomery, D. W.,	*San Francisco*	23
Montgomery, J. L.,	*Hollywood*	10
Montgomery, M. F.,	*San Francisco*	23
Montgomery, M. L.,	*San Francisco*	23
Montgomery, R. R.,	*Long Beach*	10
Montgomery, W. O.,	*San Francisco*	23
Monty, A. J.,	*San Jose*	28
Moodie, A. R.,	*Taft*	7
Moody, A. M.,	*San Francisco*	23
Moody, E. E.,	*Los Angeles*	10
Mooney, H. S.,	*Los Angeles*	10
Moor, F. B.,	*Loma Linda*	21
Moore, A. H.,	*Los Angeles*	10
Moore, A. W.,	*Los Angeles*	10
Moore, C. B.,	*San Francisco*	23
Moore, C. E.,	*San Jose*	28

*Deceased.

NAME	CITY	COUNTY SOCIETY NO.
Moore, E. C.,	*Los Angeles*	10
Moore, G.,	*Oakland*	1
Moore, G. W.,	*Los Angeles*	10
Moore, H. A.,	*Berkeley*	1
Moore, J. B.,	*Fresno*	4
Moore, L.,	*San Francisco*	23
Moore, L. S.,	*San Jose*	28
Moore, M. H.,	*Fresno*	4
Moore, N. L.,	*Santa Ana*	16
Moore, O. M.,	*Bell*	10
Moore, P. H.,	*Hollywood*	10
Moore, R.,	*Los Angeles*	10
Moore, T. V.,	*San Jose*	28
Moore, W. G.,	*San Francisco*	23
Moore, W. H.,	*Bakersfield*	7
Moose, R. M.,	*San Bernardino*	21
Moreland, J. W.,	*San Bernardino*	21
Morgan, F. R.,	*Van Nuys*	10
Morgan, J. W.,	*San Francisco*	23
Morgan, J. D., Jr.,	*Fresno*	4
Morison, C. C.,	*Oakland*	1
Morris, B. G.,	*Indio*	18
Morris, C. A.,	*Bakersfield*	7
Morris, E.,	*Auberry*	4
Morris, F. J.,	*Los Angeels*	10
Morris, G. H.,	*Santa Maria*	27
Morris, J. K., Jr.,	*Modesto*	34
Morris, K. G.,	*Petaluma*	33
Morris, L. M.,	*San Francisco*	23
Morris, M.,	*San Francisco*	23
Morris, R. L.,	*San Francisco*	23
Morrison, A. A.,	*Santa Paula*	37
Morrison, L. F.,	*San Francisco*	23
Morrison, N. D.,	*San Mateo*	26
Morrison, R. J.,	*Santa Monica*	10
Morrison, W. A.,	*Los Angeles*	10
Morrissey, E. J.,	*San Francisco*	23
Morrow, H.,	*San Francisco*	23
Morse, C. O.,	*Redwood City*	26
Morse, D. L.,	*San Francisco*	23
Morse, H. A.,	*Oakland*	1
Mortensen, E. S.,	*Santa Monica*	10
Mortensen, J. P.,	*Los Angeles*	10
Mortensen, W. L.,	*Culver City*	10
Mortensen, W. S.,	*Santa Monica*	10
Morton, A. W.,	*San Francisco*	23
Morton, D. G.,	*San Francisco*	23
Morton, L. B.,	*Los Angeles*	10
Mosby, G.,	*Oakland*	1
Mosher, W. F.,	*Ventura*	37
Mote, C. D.,	*San Francisco*	23
Motheral, R.,	*Hanford*	38
Motley, E. G.,	*Santa Ana*	16
Mott, E. L.,	*Fresno*	4
Mottram, L. D.,	*Modesto*	34
Moulton, D. H.,	*Chico*	2
Mountford, G. T.,	*Coalinga*	4
Movitt, S. I.,	*Los Angeles*	10
Movius, C. McK.,	*Los Angeels*	10
Movius, H. J.,	*Los Angeles*	10
Moyle, C. A.,	*Merced*	13
Mudd, J. L.,	*Merced*	13
Mudd, S. G.,	*Los Angeles*	10
Mugford, I. K.,	*Sacramento*	19
Mugler, F. R.,	*San Luis Obispo*	25
Muhl, A. M.,	*San Diego*	22
Mulder, E. I.,	*Compton*	10
Mulfinger, C. L.,	*Los Angeles*	10
Mullaly, E. F.,	*Vallejo*	32
Mullen, E. W.,	*Agnew*	28
Mullen, J. L.,	*Sacramento*	19
Mullen, T. F.,	*San Francisco*	23
Mulligan, H. R.,	*Hollywood*	10
Mundall, B. P.,	*Glendale*	10
Munter, E. J.,	*San Francisco*	23
Murakami, K.,	*Salinas*	14
Murphy, H. C.,	*Salinas*	14
Murphy, J. E.,	*Sacramento*	19
Murphy, P. J.,	*Los Angeles*	10
Murphy, W. H.,	*San Mateo*	26
Murray, D. H.,	*Napa*	15
Murrieta, A. J.,	*Los Angeles*	10
Musante, A. S.,	*San Francisco*	23
Musser, L. P.,	*Oakland*	1
Myers, C.,	*Los Angeles*	10
Myers, G. E.,	*Los Angeles*	10
Myers, L.,	*San Diego*	22
Myers, O. R.,	*Eureka*	5
Myers, T. C.,	*Los Angeles*	10

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NAME	CITY	COUNTY SOCIETY NO.
Naeckel, H. W.,	*Riverside*	18
Naffziger, H. C.,	*San Francisco*	23
Nagel, G. W.,	*San Francisco*	23
Nagelman, C. B.,	*Santa Barbara*	27
Nahman, A. H.,	*San Francisco*	23
Napheys, W. D.,	*Los Angeles*	10
Nass, F. C.,	*San Francisco*	23
Nasser, G. E.,	*San Francisco*	23
Natzler, A.,	*Los Angeles*	10
Naughton, J. P.,	*Los Angeles*	10
Neal, J. R.,	*Los Angeles*	10
Neff, F. E.,	*Compton*	10
Negley, J. C.,	*Los Angeles*	10
Neil, J. M.,	*Oakland*	1
Nelson, A. N.,	*Los Angeles*	10
Nelson, C. F.,	*Los Angeles*	10
Nelson, C. R.,	*Oakland*	1
Nelson, C. V.,	*Los Angeles*	10
Nelson, E. A.,	*Los Angeles*	10
Nelson, E. S.,	*Los Angeles*	10
Nelson, F. H.,	*Los Angeles*	10
Nelson, H. C.,	*Santa Ana*	16
Nelson, H. M.,	*Barstow*	21
Nelson, J. E.,	*Lodi*	24
Nelson, L. G.,	*Long Beach*	10
Nelson, R. F.,	*Oakland*	1
Nesburn, H. R.,	*Hollywood*	10
Nesche, G. E.,	*Oakland*	1
Neslund, H. C.,	*Anaheim*	16
Nethercut, R. A.,	*San Francisco*	23
Netzley, R. E.,	*Pasadena*	10
Neubert, A. D.,	*Redlands*	21
Neumann, E. V.,	*Los Angeles*	10
Neville, J. E.,	*Glendale*	10
Nevin, J. L.,	*San Bernardino*	21
Nevius, F. P.,	*Antioch*	3
Nevius, J. W.,	*Los Angeles*	10
Newbarr, F. D.,	*Los Angeles*	10
Newbecker, C. G.,	*Hanford*	8
Newcomb, A. T.,	*Pasadena*	10
Newell, E.,	*San Jose*	28
Newell, R. R.,	*San Francisco*	23
Newkirk, H. D.,	*Anaheim*	16
Newman, A.,	*San Francisco*	23
Newman, H. W.,	*San Francisco*	23
Newman, L.,	*San Francisco*	23
Newman, M. H.,	*Los Angeles*	10
Newman, R. W.,	*Suisun*	32
Newman, W. H.,	*San Diego*	22
Newman, W. W.,	*San Francisco*	23
Newmark, P.,	*Los Angeles*	10
Newson, H. E.,	*San Francisco*	23
Newton, A. H.,	*Yreka*	31
Newton, E. B.,	*Oakland*	1
Newton, H. D.,	*San Diego*	22
Newton, W. C.,	*San Diego*	22
Nicholas, C. Z.,	*Santa Barbara*	27
Nichols, F. C.,	*Santa Monica*	10
Nichols, J. N.,	*Los Angeles*	10
Nichols, R. C.,	*Ontario*	21
Nichols, R. E.,	*Woodland*	38
Nichols, W. E.,	*Pasadena*	10
Nicholson, J.,	*Los Angeles*	10
Nicholson, J. W.,	*Porterville*	36
Nicholson, R. M.,	*Los Angeles*	10
Nider, G. K.,	*Fresno*	4
Niebel, H. L.,	*Palo Alto*	28
Niebergall, H. A.,	*Los Angeles*	10
Nielsen, H. W.,	*Fowler*	4
Nielsen, J. C. E.,	*San Diego*	22
Nielsen, J. M.,	*Los Angeles*	10
Nielsen, J. W.,	*San Luis Obispo*	25
Niemand, F. G.,	*San Francisco*	23
Nies, A.,	*Orange*	16
Nies, C. A.,	*Los Angeles*	10
Nippert, E. F.,	*Los Angeles*	10
Nittler, A. N.,	*Santa Cruz*	29
Nixon, N. K.,	*Los Angeles*	10
Noall, E. T.,	*Santa Rosa*	33
Noble, B. E.,	*Los Angeles*	10
Noble, C. A., Jr.,	*San Francisco*	23
Noble, T. E.,	*Long Beach*	10
Noetling, P. R.,	*Angels Camp*	24
Noggle, G. E.,	*Chino*	21
Nolan, O. F.,	*San Francisco*	23
Nolan, T. J.,	*San Francisco*	23
Norman, G. F.,	*Eureka*	5
Norris, C. E.,	*Eureka*	5
Norris, W. J.,	*Los Angeles*	10
Northrop, R. S.,	*Napa*	15
Northway, W. H.,	*Stanford Univ.*	28
Norwood, G. E.,	*Covina*	10
Novy, F. G.,	*Oakland*	1
Noyes, F. Le G.,	*Los Angeles*	10
Nuttall, J. P.,	*Santa Monica*	10
Nutting, F. J.,	*Santa Monica*	10
Nutting, R. J.,	*Oakland*	1
Nuzum, F. R.,	*Santa Barbara*	27

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NAME	CITY	COUNTY SOCIETY NO.
Oakleaf, D. C.,	*Cloverdale*	33
Oatman, H. C.,	*San Diego*	22
O'Brien, G.,	*Sacramento*	19
O'Brien, H. J.,	*Los Angeles*	10
O'Brien, J. J.,	*Los Angeles*	10
O'Brien, J. W.,	*Sacramento*	19
O'Connor, G. B.,	*San Francisco*	23
O'Connor, J. H.,	*San Francisco*	23
O'Connor, J. J.,	*Los Angeles*	10
O'Connor, R. P.,	*Oakland*	1
O'Connor, T. C., Jr.,	*Murphy*	24
O'Connor, T. H.,	*San Francisco*	23
O'Donnell, E. W.,	*Los Angeles*	10
O'Donnell, F. J.,	*Stockton*	24
O'Donnell, J. M.,	*Hollister*	20
Oechsli, W. R.,	*Olive View*	10
Offield, A. L.,	*Burlingame*	26
O'Grady, W. E.,	*San Francisco*	23
Ohannesian, F.,	*Sacramento*	19
Ohanneson, J.,	*Alameda*	1
O'Hara, F. P.,	*San Diego*	22
O'Hara, J. J.,	*San Diego*	22
Ohnemuller, C. E.,	*Los Angeles*	10
Okami, S.,	*Terminal Island*	10
Okonogi, B.,	*Fresno*	4
Oldenbourg, L. A.,	*Berkeley*	1
Olberg, F. H.,	*Redding*	30
Olds, W. H.,	*Los Angeles*	10
Oliver, H. R.,	*San Francisco*	23
Oliver, J. V.,	*Palm Springs*	18
Oliver, W. A.,	*San Francisco*	23
Olmsted, R. C.,	*Pasadena*	10
Olsen, C. W.,	*Los Angeles*	10
Olsen, D. M. R.,	*Berkeley*	1
Olsen, E. R.,	*San Francisco*	23
Olsen, R. S.,	*Los Angeles*	10
Olsen, S.,	*San Francisco*	23
Olsen, X.,	*San Bernardino*	21
Olson, G. M.,	*Los Angeles*	10
Olson, G. W.,	*Fullerton*	16
Omelvena, J. G.,	*San Diego*	22
O'Neill, B. J., Jr.,	*San Diego*	22
O'Neill, J. N.,	*Los Angeles*	10
O'Neill, T. J.,	*Los Angeles*	10
Onesti, S. J.,	*San Francisco*	23
Oppenheimer, L. I.,	*Oakland*	1
Orbison, T. J.,	*Los Angeles*	10
Orcutt, A. H.,	*Oakland*	1
Orella, F. R.,	*San Francisco*	23
Ormsby, E. A.,	*Centerville*	1
Orr, J.,	*Oakland*	1
Osborn, H. B.,	*Fillmore*	37
Osborne, C. J.,	*San Diego*	22
Osburn, J. N. N.,	*Los Angeles*	10
Ostroff, R. A.,	*San Francisco*	23
Otis, M. R.,	*Los Angeles*	10
Ott, E. R.,	*Berkeley*	1
Ottinger, M. R.,	*San Francisco*	23
Otto, F. W.,	*Los Angeles*	10
Oviedo, G. F.,	*San Francisco*	23
Owen, C. C.,	*San Bernardino*	21
Owen, C. S.,	*National City*	22
Owen, E. D.,	*San Francisco*	23
Owen, G. R.,	*Los Angeles*	10
Owens, R. L.,	*Lodi*	24
Owens, W. R.,	*Glendale*	10
Oyler, J. D.,	*Los Angeles*	10

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NAME	CITY	COUNTY SOCIETY NO.
Pace, P. T.,	*San Jose*	28
Packard, L. A.,	*Bakersfield*	7
Padden, E. H.,	*Alameda*	1
Padgett, V. W.,	*Alleghany*	17
Paez, J.,	*San Diego*	22
Page, B. H.,	*San Mateo*	26
Page, C. W.,	*Berkeley*	1
Page, W. E.,	*Oakland*	1
Pahl, P. C. H.,	*Los Angeles*	10
Paige, G. A.,	*Anaheim*	16
Paine, N. C.,	*Glendale*	10
Palamountain, W. B.,	*Oakland*	1
Pallais, A.,	*Los Angeles*	10
Pallesen, V. W.,	*Walnut Grove*	19
Pallette, E. C.,	*Los Angeles*	10
Pallette, E. M.,	*Los Angeles*	10
Palmer, B. M.,	*Oakland*	1
Palmer, C. B.,	*San Francisco*	23
Palmer, E. O.,	*Hollywood*	10
Palmer, R. S.,	*Pomona*	10
Palmer, W. B.,	*Long Beach*	10
Paretzky, M.,	*Los Angeles*	10
Parizek, F. J.,	*Los Angeles*	10
Park, D. B.,	*Vallejo*	32
Parker, A. S.,	*Merced*	13
Parker, C. H.,	*Pasadena*	10
Parker, G.,	*Salinas*	14
Parker, H. R.,	*Oakland*	1
Parker, J. A.,	*Merced*	13
Parker, J. A.,	*Los Angeles*	10
Parker, J. T.,	*Oakland*	1
Parker, L. O.,	*San Francisco*	23
Parker, T. A.,	*La Jolla*	22
Parkin, V.,	*Los Angeles*	10
Parkinson, R. H.,	*San Francisco*	23
Parkinson, S. N.,	*Oakland*	1
Parkinson, S. R.,	*Marysville*	39
Parkinson, W. B.,	*Tulare*	36
Parks, B. K.,	*Long Beach*	10
Parks, F. R.,	*Los Angeles*	10
Parowski, S. A.,	*San Diego*	22
Parrish, C. R.,	*Los Angeles*	10
Parrish, G.,	*Los Angeles*	10
Parrott, J. C.,	*San Francisco*	23
Parsons, E. W.,	*Vienna, Austria*	23
Parsons, H. H.,	*Anniston, Alabama*	21
Parsons, J. E.,	*Dixon*	38
Parsons, J. J.,	*Monrovia*	10
Parsons, S. R.,	*Santa Barbara*	27
Partch, W. T.,	*Oakland*	1
Pasette, S. E.,	*Los Angeles*	10
Patek, S. D.,	*San Francisco*	23
Paterson, F. H.,	*Santa Ana*	16
Patrick, M. A.,	*Los Angeles*	10
Patterson, G. H.,	*Los Angeles*	10
Patterson, G. L.,	*Santa Rosa*	33
Patterson, J. A.,	*San Bernardino*	21
Patton, E. F.,	*Los Angeles*	10
Patton, R. F.,	*Mecca*	10
Paul, S. B.,	*San Francisco*	23
Paull, R. A.,	*La Jolla*	22
Paulson, G. A.,	*Ada, Okla.*	16
Paxman, D. G.,	*Oakland*	1
Payton, W. B.,	*Riverside*	18
Pchelkin, N. A.,	*San Francisco*	23
Pearce, C. M.,	*Oakland*	1
Pearce, W. M.,	*Wilmington*	10
Pearl, F. A.,	*Los Angeles*	10
Pearl, F. L.,	*San Francisco*	23
Pearson, B. S.,	*Los Angeles*	10
Pearson, C. E.,	*Turlock*	34
Pearson, E. A.,	*Los Angeles*	10
Pearson, R. G.,	*Sacramento*	19

NAME	CITY	COUNTY SOCIETY NO.
Peddicord, H.,	*Redwood City*	26
Peers, R. A.,	*Colfax*	17
Peers, R. S.,	*Oakland*	1
Peery, J. T.,	*Corcoran*	8
Peery, L. T.,	*Berkeley*	1
Peirsol, E. C.,	*Claremont*	10
Pelkan, K. F.,	*San Jose*	28
Peluso, J. D.,	*Los Angeles*	10
Pendergrass, C. I.,	*Clovis*	4
Pendergrass, J. E.,	*Clovis*	4
Pendleton, W. C.,	*Los Angeles*	10
Pendleton, W. R.,	*Long Beach*	10
Penn, L. L.,	*San Francisco*	23
Pennington, A. S.,	*San Francisco*	23
Peoples, S. Z.,	*Petaluma*	33
Peppers, C. H.,	*Los Angeles*	10
Percy, J. F.,	*Los Angeles*	10
Perkins, W. A.,	*Oakland*	1
Perry, C. G.,	*Sausalito*	11
Perry, I. H.,	*San Francisco*	23
Perry, J. R.,	*Beverly Hills*	10
Perzik, S. L.,	*Los Angeles*	10
Petch, P. H.,	*Oakland*	1
Peters, C.,	*San Francisco*	23
Peters, C. E.,	*Oakland*	1
Peters, L.,	*Alameda*	1
Petersen, H. C.,	*Stockton*	24
Petersen, H. E.,	*San Fernando*	10
Peterson, A.,	*Los Angeles*	10
Peterson, E. A.,	*Vallejo*	32
Peterson, F. W.,	*El Centro*	6
Peterson, J. B.,	*Los Angeles*	10
Petr, F.,	*Turlock*	34
Petter, R. S.,	*Los Angeles*	10
Pettis, J. H.,	*Fresno*	4
Pettit, A. V.,	*San Francisco*	23
Pettler, S. H.,	*Los Angeles*	10
Petty, C. O.,	*Fullerton*	16
Pfeiffer, H. W.,	*La Mesa*	22
Pflueger, O. H.,	*San Francisco*	23
Phelan, C. A.,	*San Francisco*	23
Phillips, A. D.,	*Sacramento*	19
Phillips, A. L.,	*Santa Cruz*	29
Phillips, C. E.,	*Los Angeles*	10
Phillips, L. F. E.,	*Palo Alto*	28
Philp, W. S.,	*Los Angeles*	10
Pickard, R. J.,	*San Diego*	22
Pidcock, J. W.,	*Hollywood*	10
Pier, H. McK.,	*Oakland*	1
Pierce, G. W.,	*San Francisco*	23
Pierce, H. F.,	*Santa Barbara*	27
Pierce, S. N.,	*Los Angeles*	10
Pierson, P. H.,	*San Francisco*	23
Pillsbury, S. G.,	*Long Beach*	10
Pimentel, G. B.,	*Los Banos*	13
Pindell, M. L.,	*Los Angeles*	10
Pindler, L. A.,	*Los Angeles*	10
Piness, G.,	*Los Angeles*	10
Pinkham, C. B.,	*San Francisco*	23
Pinkley, V. M.,	*San Bernardino*	21
Pinney, I.,	*Stockton*	24
Pinto, H. E.,	*Talmage*	12
Piper, H. E.,	*Santa Cruz*	29
Pischel, D. K.,	*San Francisco*	23
Pischel, K.,	*San Francisco*	23
Piscitelli, A. M.,	*San Francisco*	23
Pitts, E. H.,	*Sacramento*	19
Pius, C.,	*Yreka*	31
Plank, T. H.,	*San Francisco*	23
Plath, H. W.,	*Oakland*	1
Platt, J. E.,	*Pasadena*	10
Player, L. P.,	*San Francisco*	23
Pleth, V.,	*Santa Rosa*	33
Plimpton, E. B.,	*Los Angeles*	10
Plymire, D. B.,	*San Francisco*	23
Poage, C. A.,	*Colusa*	38
Podstata, V. H.,	*San Francisco*	1
Polesky, F. A.,	*Los Angeles*	10
Poley, C. W.,	*Los Angeles*	10
Poliak, P. P.,	*Agnew*	28
Polland, W. S.,	*San Rafael*	11
Pollia, J. A.,	*Los Angeles*	10
Pollock, W. E.,	*Sacramento*	19
Pomeroy, F. K.,	*Fresno*	4
Pomeroy, G. T.,	*Yountville*	15
Pomeroy, J. L.,	*Los Angeles*	10
Pond, S. B.,	*Patton*	21
Poole, F. H.,	*Santa Cruz*	29
*Poole, R. E.,	*Yountville*	15
Pope, W. H.,	*Sacramento*	19
Porter, C. C.,	*San Francisco*	23
Porter, E. E.,	*San Jose*	28
Porter, E. B.,	*Coronado*	22
Porter, J. A.,	*Modesto*	34
Porter, M. E.,	*Eldridge*	33
Porter, R. L.,	*San Francisco*	23
Porter, W. S.,	*Oakland*	1
Post, J. O.,	*Los Angeles*	10
Poston, H. P.,	*Pasadena*	10
Pottenger, F. M.,	*Monrovia*	10
Pottenger, F. M., Jr.,	*Monrovia*	10
Pottenger, J. E.,	*Monrovia*	10
Pottenger, R. T.,	*Pasadena*	10
Potter, A.,	*San Francisco*	23
Potter, C. D.,	*San Francisco*	23
Potter, G.,	*Oakland*	1
Potter, M. J. M.,	*San Diego*	22
Potter, W. H.,	*San Diego*	22
Pouppirt, P. S.,	*San Francisco*	23
Powell, A.,	*Lafayette*	1

*Deceased.

NAME	CITY	COUNTY SOCIETY NO.
Powell, B. J.,	*Stockton*	24
Powell, B. J., Jr.,	*Stockton*	24
Powell, D. R.,	*Stockton*	24
Powell, R. C.,	*Richmond*	3
Powell, W. A.,	*Orinda*	3
Powers, A. R.,	*Tracy*	24
Powers, R. A.,	*Palo Alto*	28
Pratt, B. H.,	*Lemoore*	8
Pratt, E. D.,	*Burbank*	10
Pratt, M. D.,	*Fall River Mills*	30
Pratt, O. B.,	*Los Angeles*	10
Pratt, T. R.,	*Ahwahnee*	13
Premo, M. A.,	*San Jose*	28
Presler, H. M.,	*San Diego*	22
Pressley, J. F.,	*San Francisco*	23
Pressman, J. J.,	*Los Angeles*	10
Preston, A. W.,	*Visalia*	36
Preuss, C. A.,	*Santa Barbara*	27
Price, L. G.,	*Fresno*	4
Prien, R. H.,	*Gilroy*	28
Priestley, S. F.,	*Stockton*	24
Prigge, E. K.,	*Los Angeles*	10
Prince, L. D.,	*San Francisco*	23
Prince, P. W.,	*Long Beach*	10
Prince, R. W.,	*San Bernardino*	21
Pritchard, F. H.,	*Colton*	21
Pritchard, J. L.,	*San Jose*	28
Pritchard, W. F.,	*San Bernardino*	21
Proctor, D. T.,	*Olive View*	10
Proescher, F.,	*San Jose*	28
Profant, H. J.,	*Santa Barbara*	27
Proudfoot, C. P.,	*San Luis Obispo*	25
Pruett, H. J.,	*San Francisco*	23
Pruett, J. F.,	*San Francisco*	23
Pryor, H. B.,	*Palo Alto*	28
Pulford, D. S.,	*Sacramento*	19
Purdy, A. P.,	*San Francisco*	23
Purlenky, G. P.,	*Arcata*	5
Pursell, F. J.,	*Los Angeles*	10
Purviance, C. C.,	*Fairfield*	32
Putnam, H. A.,	*Monrovia*	10
Putnam, V.,	*San Francisco*	23

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NAME	CITY	COUNTY SOCIETY NO.
Quaintance, P. A.,	*Los Angeles*	10
Quarry, P. T.,	*Santa Rosa*	33
Quimby, S. A.,	*Madera*	4
Quinan, C.,	*San Francisco*	23
Quinlan, C. M.,	*Santa Rosa*	33
Quinlan, J. F.,	*San Francisco*	23
Quinn, E. M.,	*Vallejo*	32
Quinn, T. D'A.,	*San Francisco*	23
Quinn, V. J.,	*Los Angeles*	10
Quinn, W.,	*San Francisco*	23
Quinn, W. J.,	*Eureka*	5

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NAME	CITY	COUNTY SOCIETY NO.
Rabinowitz, R.,	*San Francisco*	23
Rabwin, M. H.,	*Los Angeles*	10
Racer, F. H.,	*Lomita*	10
Radford, E. B.,	*Walnut Creek*	3
Ragan, S. T.,	*Hollywood*	10
Railsback,, O. C.,	*Woodland*	38
Raitt, G. E.,	*Santa Ana*	16
Rajotte, E. C. F.,	*San Francisco*	23
Rambo, W. H.,	*Los Angeles*	10
Rammelt, W.,	*Los Angeles*	10
Ramsay, R. E.,	*Pasadena*	10
Rand, C. W.,	*Los Angeles*	10
Randall, S. B.,	*Santa Cruz*	29
Randel, H. A.,	*Fresno*	4
Raney, R. B.,	*Los Angeles*	10
Rankin, A. H.,	*San Francisco*	23
Rankin, E. P.,	*Berkeley*	1
Ransom, D. H.,	*Madera*	4
Ransom, J. K.,	*Modesto*	34
Ranson, J. R.,	*San Luis Obispo*	25
Rapaport, H.,	*Los Angeles*	10
Rapaport, W.,	*Oakland*	1
Rasor, C.,	*Oakland*	1
Rathbone, R. H.,	*Los Angeles*	10
Rathbun, W. T.,	*Colusa*	38
Ratliff, H. L.,	*Riverside*	18
Ratner, R.,	*San Francisco*	23
Ratty, F. J.,	*San Diego*	22
Raulston, B. O.,	*Los Angeles*	10
Ravenscroft, J. W.,	*San Diego*	22
Rawlins, A. G.,	*San Francisco*	23
Ray, E. B.,	*Bellflower*	10
Ray, F. S.,	*Los Angeles*	10
Ray, H. H.,	*San Mateo*	26
Ray, L.,	*Santa Rosa*	33
Raymond, A.,	*San Francisco*	23
Rea, B. J.,	*Sacramento*	19
Rea, R. R.,	*Los Angeles*	10
Rea, S. L.,	*Ukiah*	12
Rea, T.,	*Yreka*	31
Read, F. T.,	*Glendale*	10
Read, J. M.,	*San Francisco*	23
Ready, F. L.,	*Los Angeles*	10
Ream, G. D.,	*Albany*	1
Ream, M. P.,	*San Leandro*	1
Reamer, E. F.,	*Modesto*	34
Reardon, F. B.,	*Sacramento*	19
Reasner, W. F.,	*Santa Monica*	10
Rebec, W. G.,	*Belmont*	26
Reckers, W. A.,	*Placerville*	19
Rector, J. M.,	*San Francisco*	23
Redelings, L. H.,	*San Diego*	22
Redmond, M. H.,	*Huntington Park*	10

NAME	CITY	COUNTY SOCIETY NO.
Reed, A. C.,	*San Francisco*	23
Reed, C. C.,	*Compton*	10
Reed, E. N.,	*Santa Monica*	10
Reed, J. R.,	*Pasadena*	10
Reed, W. W.,	*Nevada City*	17
Reeder, C. W.,	*Long Beach*	10
Rees, C. E.,	*San Diego*	22
Rees, C. W.,	*San Diego*	22
Rees, D. M.,	*Monterey Park*	10
Rees, H. C.,	*Los Angeles*	10
Rees, R. B.,	*Bakersfield*	7
Reeves, E. W.,	*Salinas*	14
Reeves, J. M.,	*Oakland*	1
Reeves, J. W.,	*Los Angeles*	10
Reeves, W. R.,	*Salinas*	14
Regan, L. J.,	*Los Angeles*	10
Rehfisch, J. M.,	*San Francisco*	23
Reich, A., Jr.,	*Palo Alto*	28
Reich, W. W.,	*Berkeley*	1
Reiche, C.,	*Los Angeles*	10
Reichert, F. L.,	*San Francisco*	23
Reid, R. B.,	*Beaumont*	18
Reid, R. S.,	*Oceanside*	22
Reilly, P. H.,	*Vallejo*	32
Reilly, W.,	*San Francisco*	23
Reilly, W. A.,	*San Francisco*	23
Reina, S.,	*Los Angeles*	10
Reinard, E.,	*Los Angeles*	10
Reinard, L.,	*Los Angeles*	10
Reinertsen, B. R.,	*Los Angeles*	10
Reinle, G. G.,	*Oakland*	1
Reis, A. G. DeS.,	*Oakland*	1
Reische, A. E.,	*Oakland*	1
Reiss, O.,	*Los Angeles*	10
Reitzel, R. J.,	*San Mateo*	26
Remington, L. D.,	*Monrovia*	10
Remmel, A. J.,	*San Francisco*	23
Remmen, E. T.,	*Glendale*	10
Renner, J. H.,	*Santa Barbara*	27
Renz, C.,	*San Francisco*	23
Ress, I. LeR.,	*Los Angeles*	10
Rethwilm, L. A.,	*San Francisco*	23
Reud, W. R.,	*Oakland*	1
Rey, H. F.,	*Oxnard*	37
Reynolds, C. E.,	*Venice*	10
Reynolds, H. C.,	*Arlington*	18
Reynolds, L. G.,	*Los Angeles*	10
Reynolds, L. R.,	*San Francisco*	23
Reynolds, P. A.,	*Los Angeles*	10
Reynolds, R. A.,	*San Francisco*	23
Reynolds, T. E.,	*Oakland*	1
Rhodes, G. K.,	*San Francisco*	23
Rhymes, L. H.,	*Canoga Park*	10
Riach, M. T.,	*San Diego*	22
Rice, C. H.,	*Oakland*	1
Rice, F. M.,	*San Francisco*	23
Rice, P.,	*Los Angeles*	10
Richards, C. M.,	*San Jose*	28
Richards, D. N.,	*Oakland*	1
Richards, S. B.,	*San Bernardino*	21
Richardson, G. C.,	*Sonora*	24
Richter, C.,	*Balboa Beach*	16
Richter, I. M.,	*Santa Barbara*	27
Rickabaugh, H. B.,	*Alhambra*	10
Rickard, J. F.,	*San Francisco*	23
Rigdon, R. L.,	*San Francisco*	23
Riggin, L. L.,	*Pasadena*	10
Righetti, E.,	*San Francisco*	23
Righetti, H.,	*San Francisco*	23
Rinkenberger, F. W.,	*Los Angeles*	10
Rinne, F. A.,	*San Francisco*	23
Risley, E. H.,	*Loma Linda*	21
Rixford, E.,	*San Francisco*	23
Rixford, E. L., Jr.,	*San Francisco*	23
Roath, C.,	*Los Angeles*	10
Robarts, H. P.,	*San Francisco*	23
Robbins, A. C.,	*Garden Grove*	16
Robbins, A. R.,	*Los Angeles*	10
Robbins, B.,	*Hanford*	8
Robbins, D. R.,	*Los Angeles*	10
Roberts, A. M.,	*Los Angeles*	10
Roberts, E. K.,	*Los Angeles*	10
Roberts, G. J.,	*Pomona*	10
Roberts, G. W.,	*Oakland*	1
Roberts, J. G.,	*Pomona*	10
Roberts, J. M.,	*Los Angeles*	10
Roberts, W. H.,	*Pasadena*	10
Robertson, D. L.,	*Modesto*	34
Robertson, G.,	*San Francisco*	23
Robertson, H. R.,	*Los Angeles*	10
Robertson, J. C.,	*Modesto*	34
Robertson, J. W., Jr.,	*Livermore*	1
Robertson, R. R.,	*San Rafael*	11
Robinson, J.,	*Anaheim*	16
Robinson, J. H.,	*Los Angeles*	10
Robinson, J. W.,	*Los Angeles*	10
Robinson, L. L.,	*San Rafael*	11
Robinson, S. P.,	*Santa Barbara*	27
Robinson, S. S.,	*Los Angeles*	10
Robison, L. H.,	*Los Angeles*	10
Roblee, W. W.,	*Riverside*	18
Rochex, F. J.,	*San Francisco*	23
Rodenbaugh, F. H.,	*San Francisco*	23
Rodin, F. H.,	*San Francisco*	23
Roen, P. B.,	*Hollywood*	10
Roger, J. H. D.,	*San Francisco*	23
Rogers, A. M.,	*Los Angeles*	10
Rogers, E. L.,	*Cypress*	16
Rogers, H.,	*Oakland*	1
Rogers, H.,	*Bakersfield*	7
Rogers, H. S.,	*Petaluma*	33
Rogers, J. A.,	*San Francisco*	23

NAME	CITY	COUNTY SOCIETY NO.
Rogers, J. B.,	*Imola*	15
Rogers, J. B.,	*Los Angeles*	10
Rogers, L. B.,	*Los Angeles*	10
Rogers, S.,	*Tulare*	36
Rogers, W. G.,	*Los Angeles*	10
Rogers, W. L.,	*San Francisco*	23
Rohlfes, B. J.,	*San Francisco*	23
Rohrbacher, G. H.,	*Stockton*	24
Roller, C. S.,	*Colusa*	38
Rolph, W. D.,	*National City*	22
Roncovieri, L.,	*San Francisco*	23
Rood, V. V.,	*Grass Valley*	17
Rood, R. S.,	*Davenport*	29
Rook, C. W.,	*Montrose*	10
Roome, C. T.,	*Santa Barbara*	27
Rooney, C. E.,	*Santa Monica*	10
Rooney, H. M.,	*Los Angeles*	10
Roos, A. R.,	*Loma Linda*	21
Roos, D. D.,	*Corona*	18
Root, P. N.,	*Bakersfield*	7
Root, R. R.,	*Corona*	18
Rosanoff, A. J.,	*Los Angeles*	10
Rosasco, O. L.,	*Saratoga*	28
Rosburg, A. H.,	*San Francisco*	23
Roscoe, A. M.,	*Newman*	34
Rose, H. de W.,	*Sonora*	24
Rose, J. T.,	*Healdsburg*	33
Rose, L. M.,	*Santa Clara*	28
Rosenberg, M. N.,	*Sawtelle*	10
Rosenberger, H. G.,	*Whittier*	10
Rosenblatt, J.,	*Duarte*	10
Rosenblum, D. H.,	*Los Angeles*	10
Rosenblum, H. H.,	*San Francisco*	23
Rosencrantz, E.,	*San Francisco*	23
Rosenfeld, M. H.,	*Los Angeles*	10
Rosenkranz, H. A.,	*Los Angeles*	10
Rosenthal, A. G.,	*San Francisco*	23
Rosoff, J. A.,	*Compton*	10
Rosove, L.,	*Santa Monica*	10
Ross, K. F.,	*Los Angeles*	10
Ross, M. H.,	*Los Angeles*	10
Ross, S. G.,	*Pasadena*	10
Ross, V. R.,	*Stockton*	24
Rosson, C. T.,	*Hanford*	8
Rosson, R. W.,	*Tulare*	36
Roth, E. F.,	*Palo Alto*	28
Roth, G. H.,	*Los Angeles*	10
Rothman, P. E.,	*Los Angeles*	10
Rothschild, M.,	*San Francisco*	23
Rothwell, W. T.,	*Los Angeles*	10
Rouff, E.,	*Salinas*	14
Rouse, D. E.,	*Olive View*	10
Rover, H. P.,	*Los Angeles*	10
Rowe, A. H.,	*Oakland*	1
Rowe, C. H.,	*Oakland*	1
Rowe, M. J.,	*Norwalk*	10
Rowell, H. N.,	*Berkeley*	1
Rowell, W. A.,	*Trinity Center*	3
Royer, J. E.,	*Oakland*	1
Royston, E. A.,	*Los Angeles*	10
Rubenstein, C. L.,	*San Francisco*	23
Rubin, J. S.,	*Los Angeles*	10
Rubinstein, I.,	*Los Angeles*	10
Ruddock, J. C.,	*Los Angeles*	10
Ruddy, L. W.,	*Sacramento*	19
Rude, A. E.,	*Los Angeles*	10
Ruediger, E. H.,	*San Diego*	22
*Ruediger, G. F.,	*Pasadena*	10
Rueter, K.,	*Oakland*	1
Ruff, F. R.,	*Fresno*	4
Ruggles, H. E.,	*San Francisco*	23
Rukke, G. V.,	*Monterey*	14
Rulison, E. T.,	*Sacramento*	19
Rumph, P. E.,	*Orange*	16
Runckel, G. H.,	*McCloud*	31
Runner, J. F.,	*San Francisco*	23
Rusche, C. F.,	*Hollywood*	10
Rush, R. C.,	*San Fernando*	10
Russell, E. L.,	*Santa Ana*	16
Russell, F. C.,	*San Diego*	22
Russell, J. A.,	*Auburn*	17
Russell, W. W.,	*San Diego*	22
Ruth, E. S.,	*Hollywood*	10
Rutherford, F. de P.,	*Santa Clara*	28
Ryan, A. F.,	*Los Angeles*	10
Ryan, A. J.,	*Vallejo*	32
Ryan, A. M.,	*San Francisco*	23
Ryan, F. S.,	*San Jose*	28
Ryan, R. C.,	*San Francisco*	23
Ryder, B. E.,	*Los Angeles*	10
Rypins, R. F.,	*San Francisco*	23

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NAME	CITY	COUNTY SOCIETY NO.
Saam, J. G.,	*Oakland*	1
Sabichi, G. C.,	*Claremont*	10
Safarik, E. S.,	*Los Angeles*	10
Saffro, L. B.,	*San Pedro*	10
Saier, M. H.,	*Palo Alto*	28
Sale, J. J.,	*San Francisco*	23
Salisbury, C. S.,	*Los Angeles*	10
Salomon, E.,	*San Francisco*	23
Salter, N. M.,	*Williams*	38
Sample, T. N.,	*Fresno*	4
Sampson, J. J.,	*San Francisco*	23
Sampson, J. A.,	*Los Angeles*	10
Sampson, J. P.,	*Santa Monica*	10
Sampson, M. H.,	*Berkeley*	1
Sampson, P. M.,	*Long Beach*	10
Sanderson, G. H.,	*Stockton*	24
Sandholt, J. P.,	*Monterey*	14
Sandie, J.,	*Los Angeles*	10
Sands, R. A.,	*Ocean Park*	10
Sands, R. L.,	*Santa Monica*	10
Sanford, H. E.,	*Montrose*	10
Sanford, J. R.,	*Pasadena*	10
Sansum, W. D.,	*Santa Barbara*	27
Sappington, E. E.,	*San Francisco*	23
Sargent, W. H.,	*Oakland*	1
Sartori, H. J.,	*San Francisco*	23
Sasso, J. A.,	*Los Angeles*	10
Sauber, I. E.,	*Los Angeles*	10
Sauer, F. J.,	*Los Angeles*	10
Saulsberry, C. E.,	*New Brunswick, New Jersey*	16
Saunders, C. E.,	*San Jose*	28
Savage, J. C.,	*Los Angeles*	10
Savage, P. M.,	*San Bernardino*	21
Savage, P. M., Jr.,	*San Bernardino*	21
Savage, S. H.,	*Lancaster*	10
Savage, W. W.,	*San Bernardino*	21
Sawyer, F. E.,	*Oakland*	1
Saylin, G. J.,	*Los Angeles*	10
Saylor, B. F.,	*Redding*	30
Scamell, J. W.,	*Oakland*	1
Scanland, J. M.,	*Agnew*	28
Scanlon, W. G.,	*Pasadena*	10
Scarboro, E. R.,	*Fresno*	4
Scatena, F. N.,	*Sacramento*	19
Schaefer, J. W.,	*Los Angeles*	10
Schaeffer, R. W.,	*Redondo Beach*	10
Schaller, W. F.,	*San Francisco*	23
Shallig, D. W.,	*Sacramento*	19
Schaper, E. A.,	*Keene*	7
Schaupp, K. L.,	*San Francisco*	23
Schefcik, J. F.,	*Los Angeles*	10
Scheier, R. B.,	*San Francisco*	23
Schell, J. P.,	*San Jose*	28
Schenck, G. F.,	*Los Angeles*	10
Scherfee, J. F.,	*Los Angeles*	10
Schiffbauer, H. E.,	*Los Angeles*	10
Schiller, M. M.,	*Los Angeles*	10
Schilling, W.,	*San Francisco*	23
Schlageter, H. J.,	*San Francisco*	23
Schlappi, J. C.,	*San Diego*	22
Schlotthauer, H. L.,	*Tehachapi*	7
Schlotthauer, M. Q.,	*Tehachapi*	7
Schluter, H. F.,	*Sacramento*	19
Schmelz, C. J.,	*Guerneville*	33
Schmid, C. F.,	*Hermosa Beach*	10
Schmidt, A. E.,	*San Francisco*	23
Schmidt, D. A.,	*Los Angeles*	10
Schmidt, D. G.,	*San Quentin*	11
Schmidt, E. J.,	*Fresno*	4
Schmidt, F. M.,	*Los Angeles*	10
Schmitt, E. O. G.,	*San Jose*	28
Schmitt, H. H.,	*Gilroy*	28
Schmitt, L. S.,	*San Francisco*	23
Schmoele, J. M.,	*Los Angeles*	10
Schneider, E. H.,	*Los Angeles*	10
Schoff, C. E.,	*Sacramento*	19
Schofield, R. O.,	*Boulder City, Nev.*	17
Scholl, A. J.,	*Los Angeles*	10
Scholtz, M.,	*Los Angeles*	10
Scholz, A. M.,	*Los Angeles*	10
Schomaker, T. P.,	*San Francisco*	23
Schoonmaker, G. D.,	*San Francisco*	23
Schott, H. J.,	*Los Angeles*	10
Schottstaedt, W. E. R.,	*Fresno*	4
Schreiber, L. W.,	*Santa Monica*	10
Schroeder, F. B.,	*San Diego*	22
Schroeder, L. A.,	*Los Angeles*	10
Schultz, C. E.,	*Castroville*	14
Schultz, H. H.,	*San Francisco*	23
Schultz, L. O.,	*Glendale*	10
Schulz, R. L.,	*Los Angeles*	10
Schulze, M.,	*San Francisco*	23
Schumacher, I. C.,	*San Francisco*	23
Schurmeier, H. L.,	*Santa Barbara*	27
Schussler, H., Jr.,	*San Francisco*	23
Schwalenberg, H. R.,	*Santa Barbara*	27
Schwartz, F. L.,	*San Diego*	22
Schwartzman, H.,	*Havre, Montana*	1
Schwarz, J.,	*San Francisco*	23
Schwarz, T. E.,	*Oakland*	1
Schwuchow, W. B.,	*Los Angeles*	10
Sciaroni, G. H.,	*Fresno*	4
Scobee, J. E.,	*Los Angeles*	10
Scoins, W. H.,	*Los Angeles*	10
Scott, A. J., Jr.,	*Los Angeles*	10
Scott, F. L.,	*Los Angeles*	10
Scott, J. T.,	*San Diego*	22
Scott, R. R.,	*Selma*	4
Scott, W. E.,	*San Francisco*	23
Scovel, R. E.,	*San Francisco*	23
Scudder, R.,	*Fort Bragg*	12
Scuderi, S. A.,	*Los Angeles*	10
Seabolt, G. C.,	*South Pasadena*	10
Seals, P. W.,	*Los Angeles*	10
Searls, H. H.,	*San Francisco*	23
Seaver, H. C.,	*Los Angeles*	10
Seavey, M. A.,	*Sacramento*	19
Seawell, J. W.,	*Healdsburg*	33
Sebastian, C. F.,	*Los Angeles*	10
Sedgwick, V. de M.,	*Long Beach*	10
Seeburt, E M. P.,	*San Francisco*	23
Seech, S. G.,	*Los Angeles*	10
Seeley, L. J.,	*Fort Jones*	31
Segall, G.,	*Los Angeles*	10
Seiberth, J.,	*Pixley*	36
Seid, M. J.,	*San Francisco*	23
Seiger, H. W.,	*Los Angeles*	21
Seitz, R. P.,	*San Francisco*	23
Sekiyama, I.,	*Los Angeles*	10
Seletz, R.,	*Los Angeles*	10
Seligman, L. J.,	*Los Angeles*	10
Sellery, A. C.,	*Long Beach*	10
Sellery, C. M.,	*Los Angeles*	10
Sellew, P. K.,	*Los Angeles*	10
Sellon, G. I.,	*Fullerton*	16
Semenov, H.,	*Los Angeles*	10
Servin, C.,	*Los Angeles*	10
Settle, F. B.,	*Long Beach*	10
Setzler, G. B.,	*Los Angeles*	10
Sevenman, G. W.,	*San Mateo*	26
Sevier, E.,	*Sacramento*	19
Sewall, E. C.,	*San Francisco*	23
Seymour, E. C.,	*Olive View*	10
Shackford, B. C.,	*Long Beach*	10
Shade, M. A.,	*Oakland*	1
Shafer, F. P.,	*Los Angeles*	10
Shaffer, C. J.,	*Huntington Park*	10
Shafor, H. A.,	*Los Angeles*	10
Shaghoian, A. H.,	*Daly City*	26
Shahovitch, G. P.,	*Los Angeles*	10
Shambaugh, N. F.,	*Long Beach*	10
Shapiro, N. H.,	*San Francisco*	23
Sharp, G. S.,	*Pasadena*	10
Sharp, J. C.,	*San Jose*	28
Sharp, J. G.,	*San Francisco*	23
Sharp, K. F.,	*Fresno*	4
Sharp, R. G.,	*San Diego*	22
Sharpe, O. A.,	*San Francisco*	26
Sharpsteen, J. R.,	*Oakland*	1
Shattinger, C.,	*Los Altos*	28
Shaull, E. M.,	*Palo Alto*	28
Shaw, E. B.,	*San Francisco*	23
Shaw, H. N.,	*Los Angeles*	10
Shaw, L. O.,	*Walnut Park*	10
Shea, J. F.,	*San Francisco*	23
Shea, T. T.,	*San Francisco*	23
Sheafe, E. V.,	*Oakland*	1
Sheehy, F. T.,	*San Francisco*	23
Sheets, O. B.,	*Los Angeles*	10
Shelby, D. C.,	*Los Angeles*	10
Sheldon, E. A.,	*Bellflower*	10
Sheldon, E. C.,	*Hollister*	20
Sheldon, E. F.,	*Los Angeles*	2
Sheldon, F. B.,	*Stockton*	24
Sheldon, R. F.,	*Long Beach*	10
Sheller, W. O.,	*Long Beach*	10
Shelton, E. K.,	*Santa Barbara*	27
Shelton, G. C.,	*Los Angeles*	10
Shenk, F. P.,	*Santa Cruz*	29
Shepard, C. E.,	*Stanford University*	28
Shepard, W. P.,	*San Francisco*	23
Shepardson, H. C.,	*San Francisco*	23
Shephard, J. H.,	*San Jose*	28
Shepherd, H. L.,	*Los Angeles*	10
Sher, B. H.,	*Los Angeles*	10
Sheranian, H. N.,	*Los Angeles*	10
Sherman, B. H.,	*Hollywood*	10
Sherman, J.,	*San Francisco*	23
Sherman, R. S.,	*San Francisco*	23
Sherrard, E. E.,	*Los Angeles*	10
Sherrick, J. W.,	*Oakland*	1
Sherrill, J. W.,	*La Jolla*	22
Sherry, L. B.,	*Pasadena*	10
Shidler, G. P.,	*Torrance*	10
Shields, L.,	*Oakland*	1
Shiels, G. F.,	*Redwood City*	26
Shilling, J. W.,	*Los Angeles*	10
Shipley, R. E.,	*Los Angeles*	10
Shipley, W. C.,	*Santa Rosa*	33
Shipman, S. J.,	*San Francisco*	23
Shirk, F. M.,	*La Verne*	10
Shoemaker, H.,	*Los Angeles*	10
Shone, L. B.,	*San Francisco*	23
Shook, F. M.,	*Oakland*	1
Shore, F. A.,	*Ventura*	37
Shorkley, T. M.,	*Carpinteria*	27
Short, J. E.,	*Los Angeles*	10
Shreck, J. A.,	*Redlands*	21
Shryock, A.,	*Loma Linda*	21
Shufelt, A. A.,	*San Jose*	28
Shulman, L.,	*Los Angeles*	10
Shultz, E. L.,	*Los Angeels*	10
Shumaker, E. K.,	*Los Angeles*	10
Shumaker, P. W.,	*Los Angeles*	10
*Shuman, J. R.,	*Los Angeles*	10
Shuman, J. W.,	*Los Angeles*	10
Shumate, C. A.,	*San Francisco*	23
Shumate, F. O.,	*San Francisco*	23
Shumate, T. E.,	*San Francisco*	23
Shutes, M. H.,	*Oakland*	1
Sicherman, K. L.,	*Los Angeles*	10
Sides, H. E.,	*Huntington Park*	10
Siefert, A. C.,	*Oakland*	1
Siegmund, F. W.,	*Los Angeles*	10
Sigworth, D. C.,	*Long Beach*	10
Silliman, J. C.,	*Palo Alto*	27
Silverberg, M. H.,	*San Francisco*	23
Silverman, D. J.,	*Los Angeles*	10
Silvia, C. A.,	*Gilroy*	28
Simms, J. S.,	*Bellflower*	10
Simons, C. G.,	*No. Hollywood*	10
Simonds, P. E.,	*Riverside*	18
Simpson, B.,	*San Francisco*	23
Simpson, B. R.,	*San Diego*	22
Sinclair, A. D.,	*San Francisco*	23
Singerman, I.,	*Los Angeles*	10
Sink, W. D.,	*Santa Maria*	27
Sippy, J. J.,	*Stockton*	24

*Deceased.

NAME	CITY	COUNTY SOCIETY NO.
Sirbu, A. B.	*San Francisco*	23
Sisson, C. E.	*Los Angeles*	22
Sisson, M.	*Oakland*	1
Skaleter, E. A.	*Los Angeles*	10
Skeel, D. W.	*Los Angeles*	10
Skelton, L. W.	*Pasadena*	10
Skillen, J.	*Olive View*	10
Skilling, L. E.	*Alameda*	1
Slagerman, V. B.	*Los Angeles*	10
Slater, H. M.	*Palo Alto*	28
Slattery, J. W.	*Mountain View*	28
Slaughter, H. C.	*Los Angeles*	10
Slavich, J. F.	*Oakland*	1
Sleeper, K. R.	*Los Angeles*	10
Slemons, J. M.	*Los Angeles*	10
Sloan, O. J.	*Glendale*	10
Sloane, L. O.	*Los Angeles*	10
Smale, G. A.	*Los Angeles*	10
Smallberg, H. E.	*W. Hollywood*	10
Smalley, R. B.	*Willits*	12
Smallwood, W. C.	*Long Beach*	10
Smart, E. P.	*Olive View*	10
Smedley, R. C.	*Los Angeles*	10
Smiley, H. W.	*Indio*	18
Smiley, K. E.	*Los Angeles*	10
Smitgen, P. H.	*Los Angeles*	10
Smith, A. E.	*Los Angeles*	10
Smith, A. M.	*Oakland*	1
Smith, A. S. J.	*San Jose*	28
Smith, B.	*Los Angeles*	10
Smith, B. H.	*Santa Monica*	10
Smith, B. H.	*Huntington Park*	10
Smith, C. E.	*San Francisco*	23
Smith, C. L.	*Maywood*	10
Smith, C. R.	*Los Angeles*	10
Smith, D. A.	*Oakland*	23
Smith, D. V.	*Long Beach*	10
Smith, E. D.	*Solvang*	27
Smith, E. G.	*Oakland*	1
Smith, E. W.	*San Francisco*	11
Smith, F. H.	*San Bruno*	26
Smith, G. F.	*Los Angeles*	10
Smith, H.	*Los Angeles*	10
Smith, H. A.	*Whittier*	10
Smith, H. C.	*Glendale*	10
Smith, H. G.	*Palo Alto*	28
Smith, H. H.	*Los Angeles*	10
Smith, H. L.	*Fair Oaks*	19
Smith, H. J.	*Oakland*	1
Smith, H. MacV.	*Santa Ana*	16
Smith, J.	*Bakersfield*	8
Smith, J. J. H.	*Blythe*	18
Smith, J. L.	*Los Angeles*	10
Smith, K. B.	*Oakland*	1
Smith, L. E.	*Hollister*	20
Smith, L. E.	*San Bernardino*	21
Smith, M.	*Los Angeles*	10
Smith, N. R.	*Monterey Park*	10
Smith, P. M.	*San Francisco*	23
Smith, R.	*Los Angeles*	10
Smith, R. C.	*Superior, Wis.*	10
Smith, R. D.	*Pomona*	10
Smith, R. D.	*San Pedro*	10
Smith, R. E.	*Los Angeles*	10
Smith, R. K.	*San Francisco*	23
Smith, R. L.	*Pomona*	10
Smith, R. L. I.	*Pasadena*	10
Smith, R. M.	*Glendale*	10
Smith, R. M.	*Riverside*	18
Smith, R. T.	*Pomona*	10
Smith, S.	*Pasadena*	10
Smith, S. K.	*Oakland*	1
Smith, W.	*Los Angeles*	10
Smith, W. B.	*Los Angeles*	10
Smith, W. B.	*San Francisco*	23
Smith, W. B.	*Delano*	7
Smith, W. S.	*San Diego*	22
Smithies, H. R.	*Alameda*	1
Smolt, C. A.	*Ventura*	37
Smolt, L. P.	*Ventura*	37
Smylie, R. S.	*San Diego*	22
Smyth, F. S.	*San Francisco*	23
Smyth, M. H.	*Stockton*	24
Smyth, R. J.	*Cayucos*	25
Smythe, H.	*Stockton*	24
Sneden, C. M.	*Long Beach*	10
Snoddy, C. A.	*Vallejo*	32
Snook, H. J.	*Oakland*	1
Snow, W. F.	*New York, N. Y.*	28
Snure, H.	*Los Angeles*	10
Snyder, C. C.	*Pasadena*	10
Snyder, G. A.	*West Los Angeles*	10
Snyder, G. S.	*San Francisco*	23
Sobey, G. L.	*Paso Robles*	25
Soderstrom, E. M.	*Chowchilla*	13
Sogemeier, E.	*San Mateo*	26
Soghor, S.	*Los Angeles*	10
Sohler, F. E.	*Healdsburg*	33
Soiland, A.	*Los Angeles*	10
Sokol, L. I.	*Los Angeles*	10
Solomon, J. C.	*Los Angeles*	10
Solomon, W. O.	*Oakland*	1
Somerfield, H. A.	*San Francisco*	23
Somers, M. R.	*San Francisco*	23
Sommer, E. A.	*Chino*	21
Sonnenberg, A.	*San Francisco*	23
Sooy, D. W.	*San Francisco*	23
Soper, H. V.	*Los Angeles*	10
Sorauf, B. M.	*Fresno*	4
Sornsen, A. A.	*Los Angeles*	10
Sosnowski, K. C.	*Long Beach*	10
Soto-Hall, R.	*San Francisco*	23
Soutar, R. G.	*Sacramento*	19
Southgate, Paul T.	*Long Beach*	10
Spalding, A. B.	*San Francisco*	23
Spalding, C. A. H.	*Richmond*	3
Spalding, J. B.	*Richmond*	3
Spaulding, A. Q.	*Santa Barbara*	27
Spaulding, J. M.	*Los Angeles*	10
Spear, E. B.	*Los Angeles*	10
Spear, J. L.	*Santa Rosa*	33
Speer, G. G.	*Los Angeles*	10
Speik, F. A.	*Los Angeles*	10
Spencer, G. A.	*Sacramento*	19
Spicer, W. H.	*Cucamonga*	21
Spiers, H. W.	*Los Angeles*	10
Sprague, B. H.	*Los Angeles*	10
Sprague, G. T.	*Van Nuys*	10
Sprauer, V. J.	*Los Angeles*	10
Staatz, A. D.	*Olive View*	10
Stabel, F.	*Redding*	30
Stabel, J. A.	*Colfax*	19
Stadfield, C. G.	*Hollywood*	10
Stadlinger, K. P.	*Burbank*	10
Stadtherr, E. F.	*San Francisco*	23
Stadtmuller, E. S.	*San Francisco*	23
Stafford, C. E.	*Los Angeles*	10
Stafford, D. D.	*Alameda*	1
Stafford, H. E.	*Oakland*	1
Stafford, O. R.	*Los Angeles*	10
Stahl, W. F.	*Los Angeles*	10
Stailey, H. D.	*Beverly Hills*	10
Staniford, K. J.	*Fresno*	4
Stanley, L. L.	*San Rafael*	11
Stanton, E. H.	*Glendora*	10
Stanton, F. E.	*Long Beach*	10
Stanton, R. H.	*Pasadena*	10
Starbird, G. A.	*King City*	14
Stark, B. W.	*San Francisco*	23
Stark, J. H.	*Oakland*	1
Stark, M.	*Los Angeles*	10
Starr, R. W.	*Los Angeles*	10
Staub, J. S.	*San Jose*	28
Stauffer, M. L.	*Pittsburg*	3
Stealy, C. L.	*San Diego*	22
Steddom, F. W.	*Los Angeles*	10
Steele, A. A.	*Los Angeles*	10
Steele, A. B.	*Santa Barbara*	27
Steele, E. H.	*Los Angeles*	10
Steele, J. T.	*Dunsmuir*	31
Steen, C. E.	*Brea*	16
Steen, E. J.	*Fullerton*	16
Steere, R. A.	*Downey*	10
Steffy, J. L.	*Santa Monica*	10
Stegeman, W.	*Crescent City*	5
Stein, C.	*Bellflower*	10
Stein, J. L.	*Albany*	1
Stein, W. F.	*Fresno*	4
Steinberg, J.	*Los Angeles*	10
Steinmetz, A. F.	*Hayward*	1
Steiss, C. S.	*San Francisco*	23
Stelhorn, A. F.	*Rosemead*	10
Stellar, R. W.	*Wilmington*	10
Stephens, B. M.	*Alameda*	1
Stephens, B. P.	*Oakland*	1
Stephens, E.	*Beverly Hills*	10
Stephens, H. W.	*San Francisco*	23
Stephens, P. H.	*Los Angeles*	10
Stephens, W. B.	*Alameda*	1
Stephens, W. C.	*Pasadena*	10
Stephenson, H. A.	*San Francisco*	23
*Stern, A. A.	*Sacramento*	19
Stern, R. G.	*Los Angeles*	10
Steven, R. A.	*San Francisco*	23
Stevens, C. S.	*Santa Barbara*	27
Stevens, G. M.	*Los Angeles*	10
Stevens, G. R.	*San Diego*	22
Stevens, J. B.	*Los Angeles*	10
Stevens, W. E.	*San Francisco*	23
Stevens, W. L.	*Baldwin Park*	10
Stevenson, A. P.	*Torrance*	10
Stevenson, G. L.	*Sacramento*	19
Stevenson, S. L.	*San Francisco*	23
Stewart, A. E.	*Los Angeles*	10
Stewart, C. W.	*Hollywood*	10
Stewart, H. B.	*Ripon*	34
Stewart, H. J.	*San Diego*	22
Stewart, S. F.	*Los Angeles*	10
Stewart, W.	*Los Angeles*	10
Stibbens, F. H.	*Oakland*	1
Stickler, J. H.	*Pasadena*	10
Stiles, F. E.	*San Francisco*	23
Stilson, G. D.	*Long Beach*	10
Stilwell, L. E.	*Hollywood*	10
Stimson, C. A.	*Petaluma*	33
Stirewalt, H. W.	*Concord*	3
St. John, A. H. V.	*Los Angeles*	10
Stoddard, C. L.	*San Diego*	22
Stoddard, J. McC.	*Beverly Hills*	10
Stoddard, T. A.	*San Francisco*	23
Stoker, E. M.	*San Francisco*	23
Stoll, A. H.	*Oxnard*	37
Stolle, F.	*Dixon*	32
Stolz, C. E.	*Los Angeles*	10
Stolz, H. R.	*Berkeley*	1
Stone, B.	*San Francisco*	23
Stone, C. S.	*Santa Barbara*	27
Stone, E. M.	*Oceanside*	22
Stone, R. S.	*San Francisco*	23
Stone, W. J.	*Pasadena*	10
Stoops, R. P.	*Oakland*	1
Storey, T. A.	*Stanford University*	28
Stork, V. E.	*Los Angeles*	10
Stoughton, A. V.	*Claremont*	10
Stovall, L.	*Los Angeles*	10
Stowe, O. P.	*Oakland*	1
Stowe, W. P.	*San Francisco*	23
Strahlmann, L.	*San Diego*	22
Strange, S. P.	*San Francisco*	23
Stratford, E. B.	*Los Angeles*	10
Strathearn, H. J.	*Hollywood*	10
Stratton, E. K.	*San Francisco*	23
Stratton, G. W.	*Marysville*	39
Stratton, J. M.	*Berkeley*	1
Streaker, L. H.	*Goleta*	27
Street, L. A. B.	*Los Angeles*	10
Strickler, D.	*San Francisco*	23
Strickler, J. P.	*San Francisco*	23
Striegel, L. McC.	*Long Beach*	10
Striegel, R. J.	*Long Beach*	10
Strietmann, W. H.	*Oakland*	1
Strong, A. J.	*Santa Paula*	37
Strongin, S.	*Bakersfield*	7
Struble, H. P.	*Hayward*	1
St. Sure, F. A.	*San Diego*	22
Sturdivant, B. F.	*Pasadena*	10
Sturgeon, C. T.	*Los Angeles*	10
Sturges, R. L.	*Los Angeles*	10
Styan, W. E.	*San Francisco*	26
Sudlow, E. L.	*San Fernando*	10
Suehs, P. E.	*San Francisco*	23
Sugar, H.	*Los Angeles*	10
Sullivan, C. S.	*San Jose*	28
Sullivan, J. J.	*Oakland*	1
Sullivan, J. M.	*San Francisco*	23
Sullivan, J. R.	*San Francisco*	23
Sullivan, N. R.	*Santa Cruz*	29
Sullivan, W. J.	*Hollywood*	10
Sulzbacher, C. I.	*Los Angeles*	10
Sumerlin, H. S.	*San Diego*	22
Sumner, W. A.	*San Francisco*	23
Sundberg, R. H.	*San Diego*	22
Sundin, P. O.	*Los Angeles*	10
Supple, A. J.	*South Pasadena*	10
Suski, P. M.	*Los Angeles*	10
Susnow, D. A.	*San Francisco*	23
Sutherland, K. H.	*Santa Ana*	16
Sutherland, P. R.	*Los Angeles*	10
Sutherland, R. T.	*Oakland*	1
Sutherlin, C. G.	*Los Angeles*	10
Sutton, T. L.	*Stockton*	24
Svoboda, F. C.	*San Diego*	22
Swanson, C. F.	*Los Angeles*	10
Swarts, R. E.	*San Francisco*	26
Swauger, L. S.	*Oakland*	1
Swearingen, F. C.	*Pomona*	10
Sweeney, J. P.	*Milbrae*	26
Sweet, C. D.	*Oakland*	1
Sweet, E.	*Los Angeles*	10
Sweetser, G. W.	*Martinez*	3
Swett, W. F.	*San Francisco*	23
Swezey, S.	*Los Angeles*	10
Swift, L. M.	*Marysville*	39
Swigart, M.	*Monterey*	14
Swim, W. A.	*Los Angeles*	10
Swindt, J. K.	*Pomona*	10
Swinney, R. W.	*Long Beach*	10
Symonds, C. W.	*Pasadena*	10
Szukalski, J. P.	*Pasadena*	10

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NAME	CITY	COUNTY SOCIETY NO.
Taber, L. E.	*San Francisco*	23
Taggart, M. M.	*McFarland*	7
Talbott, E. M.	*San Francisco*	23
Talbott, G. M.	*San Francisco*	23
Talmage, C. H.	*Sanitarium*	15
Taltavall, W. A.	*Redlands*	21
Tandowsky, R. M.	*Hollywood*	10
Tanner, C. O.	*San Diego*	22
Tarnutzer, B. C.	*Los Angeles*	10
Tatro, R. F.	*Loma Linda*	21
Tattersall, K. L.	*Oakland*	1
Taubles, G. H.	*San Francisco*	23
Taussig, L.	*San Francisco*	23
Taylor, D. A.	*San Francisco*	23
Taylor, E. C.	*San Francisco*	23
Taylor, E. M.	*Oakland*	1
Taylor, F. B.	*Oakland*	1
Taylor, F. W. H.	*Los Angeles*	10
Taylor, G. M.	*Los Angeles*	10
Taylor, L. E.	*Los Angeles*	10
Taylor, L. H.	*Oakland*	1
Taylor, P. A.	*San Francisco*	23
Taylor, R. G.	*Los Angeles*	10
Taylor, R. N.	*Long Beach*	10
Taylor, R. O.	*San Diego*	22
Taylor, R. T.	*Los Angeles*	10
Taylor, W.	*Martinez*	3
Teaby, W. L.	*Monterey*	14
Teass, C. J.	*San Luis Obispo*	25
Tebbe, F. H.	*Oakland*	1
Tebbetts, H. B.	*Los Angeles*	10
Tebbetts, H. E.	*Whittier*	10
Tedstrom, M. K.	*Santa Ana*	16
Teel, A. W.	*Los Angeles*	10
Teeter, A. L.	*Oakland*	1
Teitler, M. H.	*San Francisco*	23
Templeton, H. J.	*Oakland*	1
Templeton, W. K.	*Riverside*	18
Terry, R. A.	*Long Beach*	10
Terry, W. I.	*San Francisco*	23
Thayer, L. E.	*Los Angeles*	10

* Deceased.

NAME	CITY	COUNTY SOCIETY NO.
Thebaut, W. M., Jr.,	*Oakland*	1
Thelander, H. E.,	*San Francisco*	23
Thelen, E.,	*San Diego*	22
Thibodeau, J. A.,	*San Francisco*	23
Tholen, E. F.,	*Los Angeles*	10
Thomas, B.,	*Oakland*	1
Thomas, B. S.,	*Sacramento*	19
Thomas, E. W.,	*Bieber*	24
Thomas, H. G.,	*Oakland*	1
Thomas, J. B.,	*Palo Alto*	28
Thomas, R. E.,	*Los Angeles*	10
Thomas, V. E.,	*Alhambra*	10
Thomas, W. C.,	*Long Beach*	10
Thomas, W. McL.,	*San Diego*	22
Thomason, G.,	*Los Angeles*	10
Thomason, S. D.,	*San Dimas*	10
Thompson, A. C.,	*Mountain View*	28
Thompson, A. R.,	*Rio Vista*	32
Thompson, C. P.,	*San Francisco*	23
Thompson, C. V.,	*Pescadero*	26
Thompson, C. V.,	*Lodi*	24
Thompson, C. W.,	*Pasadena*	10
Thompson, D. E.,	*Red Bluff*	35
Thompson, E. E.,	*Red Bluff*	35
Thompson, E. H.,	*Burbank*	10
Thompson, G. E.,	*Fresno*	4
Thompson, H. A.,	*San Diego*	21
Thompson, H. D.,	*Los Angeles*	10
Thompson, H. F.,	*Los Angeles*	10
Thompson, H. L.,	*Los Angeles*	10
Thompson, H. L.,	*Long Beach*	10
Thompson, I. B.,	*Sonora*	24
Thompson, J. E.,	*Los Angeles*	10
Thompson, K. J.,	*Oakland*	1
Thompson, L. O.,	*San Diego*	22
Thompson, L. R.,	*San Pedro*	10
Thompson, O. E.,	*Riverside*	18
Thompson, R. C.,	*Whittier*	10
Thompson, R. J.,	*Los Angeles*	10
Thompson, R. L.,	*Burbank*	10
Thompson, V. P.,	*Los Angeles*	10
Thomson, A. M.,	*Santa Rosa*	33
Thomson, D.,	*Burbank*	10
Thomson, H. S.,	*San Francisco*	23
Thomson, R. R.,	*Oakland*	1
Thoren, M. E.,	*Weimar*	17
Thornburg, H. D.,	*Los Angeles*	10
Thorne, I. W.,	*San Francisco*	23
Thorner, M.,	*Santa Barbara*	27
Thornton, A. J.,	*San Diego*	22
Thornton, J.,	*Los Angeles*	10
Thorpe, A. C.,	*Los Angeles*	10
Thorpe, F.,	*Hollywood*	10
Thorpe, L. S.,	*Los Angeles*	10
Threlfall, D. R.,	*San Jose*	28
Thunen, P. E.,	*Marysville*	39
Thurber, F.,	*Hollywood*	10
Thurber, P.,	*Los Angeles*	10
Thuresson, P. F.,	*Riverside*	18
Thurlow, A. A.,	*Santa Rosa*	33
Tiber, L. J.,	*Los Angeles*	10
Tice, E. W.,	*Los Angeles*	10
Tickell, A. H.,	*Nevada City*	17
Tiffany, D. F. E.,	*San Jose*	28
Tiffany, E. V.,	*Oakland*	1
Tillman, F. J.,	*Fresno*	4
Tillman, T. E.,	*San Francisco*	23
Tillmanns, C. S. J.,	*Los Angeles*	10
Tillotson, R. S.,	*Sacramento*	19
Timme, A. R.,	*Los Angeles*	10
Timon, A. N.,	*Los Angeles*	10
Tipton, S. P.,	*Watsonville*	29
Tisinger, E. L.,	*San Bernardino*	21
Titcomb, L. R.,	*Los Angeles*	10
Titus, C. I.,	*Sacramento*	19
Titus, J. H.,	*Ontario*	21
Tobias, M.,	*Los Angeles*	10
Tobin, P. A.,	*San Francisco*	23
Tock, E. W.,	*Santa Ana*	16
Todd, H. A.,	*Visalia*	36
Todd, J. B.,	*Los Angeles*	10
Toffelmier, D. D.,	*Oakland*	1
Toland, C. G.,	*Los Angeles*	10
Tollefson, D. G.,	*Los Angeles*	10
Toller, R. B.,	*Talmage*	12
Tolman, G. P.,	*Watsonville*	29
Tomlinson, R. F.,	*San Francisco*	23
Toomey, F. E.,	*San Diego*	21
Topham, E.,	*San Francisco*	23
Torell, G. J.,	*Los Angeles*	10
Torrano, M. A.,	*Oakland*	1
Torre, E. D.,	*San Francisco*	23
Torrens, A. S.,	*Hanford*	8
Torrey, H. B.,	*Stanford University*	28
Tourtillot, W. W.,	*Porterville*	36
Towne, E. B.,	*San Francisco*	23
Townsend, C. E.,	*Los Angeles*	10
Townsend, K.,	*Los Angeles*	10
Traber, C. H.,	*Reedley*	4
Trainor, J. V.,	*Los Angeles*	10
Trainor, M. E.,	*South Pasadena*	10
Trauner, L. M.,	*San Francisco*	23
Traver, C. M.,	*Patton*	21
Tretheway, L. E.,	*Manteca*	24
Treweek, D. N.,	*Los Angeles*	10
*Trewhella, J. S.,	*Montebello*	10
Trick, T. R.,	*Los Angeles*	10
Trimble, H. G.,	*Oakland*	1
Trimmer, E. L.,	*Los Angeles*	10
Trott, L. d'N.,	*Los Angeles*	10
Trotter, A. D.,	*Los Angeles*	10
Trowbridge, D. H.,	*Fresno*	4
Truax, J. P.,	*Lompoc*	27
True, H. F.,	*Sacramento*	19
Truman, S. R.,	*Oakland*	1
Truxaw, J. W.,	*Anaheim*	16
Tucker, H.,	*Agnew*	28
Tucker, R. G.,	*Alhambra*	10
Tulley, F. E.,	*San Diego*	22
Tully, J. J.,	*Stockton*	24
Tunnell, A. M.,	*Novato*	11
Tupper, R. B.,	*Fresno*	4
Turbow, A. O.,	*Los Angeles*	10
Turco, E. A.,	*San Jose*	28
Turkel, A. S.,	*Los Angeles*	10
Turley, J. G.,	*Los Angeles*	10
Turnbull, F. M.,	*Los Angeles*	10
Turner, E. C.,	*Sacramento*	19
Turner, J. H.,	*Huntington Park*	10
Tuteur, E. B.,	*Los Angeles*	10
Tuttle, S.,	*San Francisco*	23
Twitchell, E. W.,	*San Francisco*	23
Tyler, L. G.,	*San Rafael*	11
Tyroler, F. N.,	*Los Angeles*	10
Tyrrell, J. B.,	*Victorville*	21

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NAME	CITY	COUNTY SOCIETY NO.
Uhl, G. M.,	*Woodland*	38
Uhls, R. T.,	*Long Beach*	10
Ullmann, H. J.,	*Santa Barbara*	27
Unsinger, H. F.,	*San Francisco*	23
Updegraff, H. L.,	*Hollywood*	10
Up de Graff, T. S.,	*Pasadena*	10
Upshaw, H. T.,	*Pasadena*	10
Ussher, N. T.,	*Santa Barbara*	27
Utter, J. W.,	*Anaheim*	16
Uyeyama, H.,	*Oakland*	1

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NAME	CITY	COUNTY SOCIETY NO.
Vachout, M. A.,	*Southgate*	10
Van Allen, L. K.,	*Ukiah*	12
Vance, H. W.,	*Pasadena*	10
Vance, J. T.,	*Sacramento*	19
Van Cott, W. B.,	*Los Angeles*	10
Van Dalsem, S. B.,	*San Jose*	28
Van Dalsem, W. S.,	*San Jose*	28
Van Den Berg, W. J.,	*Sacramento*	19
Vanderburgh, C. M.,	*Fresno*	4
Van de Pol, A.,	*Modesto*	34
Van der Leek, P.,	*Stockton*	24
Van Deventer, W. C.,	*Redwood City*	23
Vandever, G. V.,	*Oakland*	1
Van Eman, O. H.,	*El Centro*	6
Van Fleet, H. D.,	*Los Angeles*	10
Van Meter, A. L.,	*Stockton*	24
Van Meter, F. J.,	*Norwalk*	10
Van Nuys, R. G.,	*Berkeley*	1
Van Ornum, E. N.,	*Los Angeles*	10
Van Paing, J. F.,	*Santa Barbara*	27
Van Pelt, R. S.,	*Los Angeles*	10
Van Sciver, C. B.,	*Los Angeles*	10
Van Scoyoc, J. G.,	*Los Angeles*	10
Van Sickle, J. R.,	*Santa Monica*	10
Van Soest, E. H.,	*Los Angeles*	10
Van Vorhis, J. H.,	*Corcoran*	8
Van Wagenen, R. J.,	*Fresno*	4
*Van Zwalenburg, C.,	*Riverside*	18
Varden, A. E.,	*San Bernardino*	21
Vardon, C. C.,	*Los Angeles*	10
Vardon, E. M.,	*Los Angeles*	10
Vaughan, L. B.,	*Long Beach*	10
Veckl, M. E.,	*San Francisco*	23
Vener, H. I.,	*Sawtelle*	10
Venzke, H.,	*Pasadena*	10
Veon, J. E.,	*Bakersfield*	7
Verne, V. E.,	*Long Beach*	10
Viau, B. H.,	*Sanger*	4
Vickerson, J. I.,	*Oakland*	1
Vidgoff, I. J.,	*Los Angeles*	10
Vidrickson, H. L.,	*Weed*	31
Viecelli, J. D.,	*San Francisco*	23
Vieira, E.,	*Sebastopol*	33
Vieira, F. G.,	*Stockton*	24
Vinetz, J. C.,	*Los Angeles*	10
Vinks, W. A.,	*Lincoln*	17
Viole, P. P.,	*Los Angeles*	10
Violett, C. C.,	*Garden Grove*	16
Visalli, J.,	*San Francisco*	23
Vischi, G. J. J.,	*Stockton*	24
Visscher, L. G.,	*Los Angeles*	10
Vizzard, W. R.,	*San Francisco*	23
Voight, C. E.,	*San Francisco*	23
Vollert, A. J.,	*San Francisco*	23
Vollmer, A. M.,	*San Francisco*	23
Vollmer, H. W.,	*Sanitarium*	15
von Briesen, H.,	*Los Angeles*	10
Von der Lieth, H. O.,	*San Francisco*	23
von Geldern, C. E.,	*Sacramento*	19
von Geldern, H.,	*San Francisco*	23
Von Hagen, K. O.,	*Los Angeles*	10
Von Hungen, A. P.,	*Escalon*	34
von Wedelstaedt, B.,	*Long Beach*	10
Voorhees, H. M.,	*Los Angeles*	10
Voorsanger, W. C.,	*San Francisco*	23
Vowinckel, F. W.,	*San Francisco*	1
Vruwink, J.,	*Los Angeles*	10

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NAME	CITY	COUNTY SOCIETY NO.
Waddell, D. Q.,	*Los Angeles*	10
Waddell, W. E.,	*Los Angeles*	10
Wade, A. B.,	*Santa Ana*	16
Wade, L. T.,	*San Luis Obispo*	25
Wade, R. S.,	*Santa Ana*	16
Wagner, A. F.,	*Los Angeles*	10
Wagner, L. D.,	*Pasadena*	10
Wahl, H. A.,	*San Francisco*	23
Wahle, H.,	*Oakland*	1
Wahlen, J. A.,	*Montebello*	10
Wahrhaftig, M. J.,	*Fresno*	4
Waitzfelder, F.,	*Los Angeles*	10
Wald, H. A.,	*So. San Francisco*	23
Walker, A. W.,	*Riverside*	18
Walker, B. F.,	*Fresno*	4
Walker, C. A.,	*San Francisco*	23
Walker, C. B.,	*Los Angeles*	10
Walker, G. W.,	*Fresno*	4
Walker, J. D.,	*Los Angeles*	10
Walker, J. E.,	*Long Beach*	10
Walker, J. R.,	*Fresno*	4
Walker, P. J.,	*Los Angeles*	10
Walker, R. S.,	*Oakland*	1
Walker, W. H.,	*Willows*	38
Wall, H. W.,	*Hollywood*	10
Wallace, A.,	*Los Angeles*	10
Wallace, C. T.,	*Eureka*	5
Wallace, E. P.,	*Los Angeles*	10
Wallace, W. S.,	*Orange*	16
Waller, G. P., Jr.,	*Los Angeles*	10
Waller, L. M.,	*Hollywood*	10
Wallerius, R. M.,	*Sacramento*	19
Walrath, G. B.,	*Los Angeles*	10
Walsh, F. D.,	*Oakland*	1
Walsh, J. F.,	*Eureka*	5
Walters, C. M. C.,	*Los Angeles*	10
Walters, F. J.,	*San Diego*	22
Walters, H. S.,	*San Luis Obispo*	25
Walters, P. R.,	*Berkeley*	1
Walton, H. M.,	*Loma Linda*	21
Walton, R. R.,	*Linwood*	10
Warburton, J. A.,	*Burlingame*	26
Ward, R.,	*San Francisco*	23
Wardrip, B. H.,	*San Jose*	28
Ware, E. R.,	*Los Angeles*	10
Ware, J. G.,	*Santa Barbara*	27
Warmer, C. A.,	*Los Angeles*	10
Warner, H. E.,	*Los Angeles*	10
Warner, O. H.,	*San Diego*	22
Warnock, A. W.,	*San Pedro*	10
Warnshuis, F. C.,	*San Francisco*	23
Warren, H. C.,	*Belmont*	26
Warren, J. P.,	*San Francisco*	23
Warren, J. W.,	*Los Angeles*	10
Washburn, W. W.,	*San Francisco*	23
Watanabe, L. M.,	*San Jose*	28
Waters, P. S.,	*Patton*	21
Waters, Z. O.,	*San Francisco*	23
Watkins, L. H.,	*Pasadena*	10
Watkins, W. E.,	*Santa Ana*	16
Watson, A. R.,	*Eureka*	5
Watson, F. V.,	*Hollywood*	10
Watson, L. F.,	*Los Angeles*	10
Watson, H. G.,	*San Francisco*	23
Watson, R. G.,	*Oakland*	1
Watson, T.,	*Sunnyvale*	28
Watters, E. M.,	*Santa Cruz*	29
Watters, H. G.,	*Watsonville*	29
Waxman, A.,	*Los Angeles*	10
Way, S. C.,	*San Francisco*	23
Wayburn, E.,	*San Francisco*	23
Wayland, C.,	*San Jose*	28
Wayland, C. A.,	*San Jose*	28
Wayland, R. T.,	*Glendale*	10
Wayte, E. W.,	*Norwalk*	10
Weaver, C. H.,	*Los Angeles*	10
Weaver, D. D.,	*Oakland*	1
Weaver, L. W.,	*Oakland*	1
Webber, W. T.,	*Long Beach*	10
Weber, A. L.,	*Upland*	21
Weber, W. L.,	*Los Angeles*	10
Webster, D. P.,	*Fresno*	4
Webster, G. M.,	*Patton*	21
Webster, J. C.,	*Los Angeles*	10
Webster, J. S.,	*Mariposa*	13
Webster, O. L.,	*Holtville*	6
Weddle, C.,	*Dinuba*	36
Wedgewood, P. E.,	*San Diego*	22
Weeks, A.,	*San Francisco*	23
Wegeforth, H. M.,	*San Diego*	22
*Weger, G. S.,	*Redlands*	21
Wehrly, J.,	*Santa Ana*	16
Wehrly, W. S.,	*Santa Ana*	16
Weil, S. N.,	*Rodeo*	3
Weinberg, S. L.,	*Los Angeles*	10
Weinberger, J.,	*Vienna, Austria*	22
Weiner, W. M.,	*San Francisco*	23
Weirich, E. W.,	*Angels Camp*	24
Weiser, A. D.,	*Los Angeles*	10
Weiskotten, W. O.,	*San Diego*	22
Weiss, K. F.,	*Visalia*	36
Weitkamp, A. H.,	*Los Angeles*	10
Welbourn, L. S.,	*Van Nuys*	10
Welbourn, M. A.,	*Los Angeles*	10
Welbourn, P. M.,	*Los Angeles*	10
Welch, E. H.,	*Pomona*	10
Welch, S. H.,	*Glendale*	10
Welcome, E. H.,	*Downey*	10
Welfer, C. R.,	*Los Angeles*	10
Weller, T. W.,	*Oakland*	1

* Deceased.

NAME	CITY	COUNTY SOCIETY NO.
Wells, C. E.,	*Woodlake*	36
Wells, E. W.,	*Los Angeles*	10
Wells, J. T.,	*San Diego*	22
Wells, M. C.,	*Los Angeles*	10
Wells, P. H.,	*Lower Lake*	15
Wells, S. J.,	*Sacramento*	19
Welpton, M. A.,	*San Diego*	22
Welsh, O. A.,	*Ventura*	37
Welti, L.,	*Napa*	15
Werden, D. H.,	*San Diego*	22
Werlich, R. E.,	*San Diego*	22
Werner, E.,	*Los Angeles*	10
Werthmann, P. A.,	*Gustine*	13
Wessels, W. F.,	*Los Angeles*	10
Wesson, M. B.,	*San Francisco*	23
West, F. D.,	*Beaumont*	18
West, H. F.,	*Los Angeles*	10
Weston, F. P.,	*Pasadena*	10
Weston, F. W.,	*Tustin*	16
Westphal, H. G.,	*Glendale*	10
Wetherill, G. G.,	*Palo Alto*	28
Wetmore, C. T.,	*Berkeley*	1
*Weymann, M. F.,	*Los Angeles*	10
Whalen, J. F.,	*Altadena*	10
Whalen, T. J.,	*San Francisco*	23
Whalman, H. F.,	*Los Angeles*	10
Wheatley, W. G.,	*Azusa*	10
Wheeler, I. A.,	*Colfax*	33
Wheelis, J. M.,	*Los Angeles*	10
Whitaker, L. S.,	*San Jose*	28
Whitcomb, E. L.,	*Los Angeles*	10
White, A. S.,	*San Francisco*	23
White, H. L.,	*Red Bluff*	35
White, J. F.,	*San Diego*	22
White, J. H.,	*Chico*	2
White, L. F.,	*Los Angeles*	10
White, P. G.,	*Los Angeles*	10
Whitelock, T. S.,	*San Diego*	22
Whitelock, T. S., Jr.,	*San Diego*	22
Whiting, F. M.,	*Oroville*	2
Whitlow, J. E.,	*Fillmore*	10
Whitmer, C. F.,	*Colton*	21
*Whitney, J. L.,	*San Francisco*	23
Whittaker, L. F.,	*Huntington Beach*	16
Wickman, H. J.,	*Riverside*	18
Wiebe, D.,	*Reedley*	4
Wiebe, F. E.,	*Soledad*	14
Wiebusch, E. G. L.,	*Los Angeles*	10
Wiel, H. I.,	*San Francisco*	23
Wiese, W. F.,	*Fresno*	4
Wightman, A. H.,	*Laguna Beach*	16
Wilbur, B. C.,	*Palo Alto*	28
Wilbur, R. L.,	*Stanford University*	23
Wilcox, A. B.,	*Santa Barbara*	27
Wilcox, C. F.,	*Huntington Park*	10
Wilcox, R. W.,	*Long Beach*	10
Wiley, E. H.,	*Los Angeles*	10
Wiley, H. J.,	*Huntington Park*	10
Wilhelm, L. F. X.,	*Los Angeles*	10
Wilholt, J. W.,	*Ocean Beach*	22
Wilke, J. O.,	*Hermosa Beach*	10
Wilken, H. T.,	*Santa Monica*	10
Wilkinson, A. J.,	*San Diego*	22
Wilkinson, A. M.,	*Hollywood*	10
Willard, W. P.,	*San Francisco*	23
Willcutt, G. H.,	*San Rafael*	11
Williams, A. H.,	*Hollywood*	27
Williams, A. J.,	*San Francisco*	23
Williams, C. G.,	*Los Angeles*	10
Williams, D. B.,	*Colton*	21
Williams, D. B.,	*Lynwood*	15
Williams, E. H.,	*Los Angeles*	10
Williams, F.,	*San Francisco*	23
Williams, F. F., Jr.,	*Patton*	21
Williams, J.,	*Eldridge*	33
Williams, J. B.,	*Los Angeles*	10
Williams, J. C.,	*San Francisco*	23
Williams, N. H.,	*Los Angeles*	10
Williams, P. M.,	*Los Angeles*	10
Williams, R.,	*Los Angeles*	10
Williams, W. F.,	*Oakland*	1
Williamson, M. A.,	*Lone Pine*	7
Williamson, M. C.,	*Upland*	21
Williamson, N. E.,	*Stockton*	24
Willier, A. F.,	*San Diego*	22
Willis, H. Q.,	*Balboa*	16
Willits, E. K.,	*San Francisco*	23
Wills, C. A.,	*Oakland*	1
Wills, I.,	*Santa Barbara*	27
Willson, L. R.,	*Fresno*	4
Wilmar, A. H.,	*Paso Robles*	25
Wilson, A. D.,	*Palm Springs*	18
Wilson, C.,	*Monterey*	14
Wilson, C. G.,	*Palo Alto*	28
Wilson, D. R.,	*San Jose*	28
Wilson, G.,	*Sacramento*	19
Wilson, G. W.,	*Los Angeles*	10
Wilson, H. F.,	*San Francisco*	23
Wilson, H. H.,	*Los Angeles*	10
Wilson, H. P.,	*Whittier*	10
Wilson, H. R.,	*Modesto*	34
Wilson, H. S.,	*N. Hollywood*	10
Wilson, J. B.,	*San Francisco*	23
Wilson, J. C.,	*San Jose*	28
Wilson, J. C.,	*Los Angeles*	10
Wilson, J. D.,	*Berkeley*	1
Wilson, J. M.,	*Pasadena*	10
Wilson, J. W.,	*San Francisco*	23
Wilson, J. W., Jr.,	*Los Angeles*	10
Wilson, K. R.,	*Santa Barbara*	27
Wilson, R. D.,	*Los Angeles*	10
Wilson, W. M.,	*Weaverville*	30
Wimmer, S. D.,	*Los Angeles*	10
Wimp, W. H.,	*Pasadena*	10
Winchell, F. S.,	*Oakland*	1
Wineberg, A. C.,	*Oakland*	1
Wineland, A. J.,	*Los Angeles*	10
Wing, L. A.,	*Eureka*	5
Winn, W. A.,	*Springville*	36
Winnard, W. F. R.,	*Los Angeles*	10
Winslow, A. L.,	*Oakland*	1
Winterberg, W. H.,	*San Francisco*	23
Winternitz, C. D.,	*San Francisco*	23
Winters, W. P.,	*San Diego*	22
Wiper, T. B.,	*San Francisco*	23
Wise, D. C.,	*Pittsburg*	3
Wise, P. L.,	*San Jose*	28
Wiser, F. C.,	*Los Angeles*	10
Wisner, F. B.,	*Marysville*	39
Wissner, L. O.,	*Modesto*	34
Witherbee, H. R.,	*Los Angeles*	10
Witherbee, O. O.,	*Los Angeles*	10
Witter, C. B.,	*Los Angeles*	10
Wold, A. P.,	*Oakland*	1
Wolf, G. L.,	*San Francisco*	23
Wolfe, H. H.,	*Fort Bragg*	12
Wolff, E.,	*San Francisco*	23
Wolff, M. J.,	*Los Angeles*	10
Wolfram, W. H.,	*Cincinnati, Ohio*	27
Wolfsohn, J. M.,	*San Francisco*	23
Wolfsohn, M.,	*Monterey*	14
Wong, T. A.,	*San Francisco*	23
Wood, C. H.,	*Glendora*	10
Wood, C. L.,	*St. Helena*	15
Wood, D. A.,	*San Francisco*	23
Wood, D. A.,	*San Francisco*	23
Wood, F. W.,	*Alhambra*	10
Wood, G. J.,	*St. Helena*	15
Wood, G. N., Jr.,	*Palo Alto*	28
Wood, H. A.,	*Long Beach*	10
Wood, J. A.,	*Anaheim*	16
Wood, J. G.,	*Los Angeles*	10
Wood, R. F.,	*National City*	22
Wood, W. A.,	*Oakland*	1
Woodard, D. S.,	*Watsonville*	29
Woodhull, C. G.,	*Los Angeles*	10
Woodhull, R. A.,	*Los Angeles*	10
Woods, D. K.,	*San Diego*	22
Woods, D. L.,	*Los Angeles*	10
Woods, L.,	*Oakland*	1
Woods, R. A.,	*Los Angeles*	10
Woods, W. W.,	*Alhambra*	10
Woodward, E. B.,	*Monrovia*	10
Woolf, M. S.,	*San Franucisco*	23
Woolfan, E. B.,	*Los Angeles*	10
Woolford, J. S.,	*Eureka*	5
Woolsey, C. H.,	*San Francisco*	23
Woolsey, J. H.,	*Woodland*	38
Woolston, W. J.,	*Pasadena*	10
Workman, R. A.,	*Pacific Grove*	14
Worthington, L. C.,	*Bakersfield*	7
Worthington, R. L.,	*San Diego*	22
Wright, B. W.,	*Los Angeles*	10
Wright, C. A.,	*Los Angeles*	10
Wright, H. J.,	*Healdsburg*	33
Wright, J. M.,	*Pasadena*	10
Wright, La V.,	*San Francisco*	23
Wright, R. W.,	*Palo Alto*	28
Wright, W. B., Jr.,	*Long Beach*	10
Wright, W. M.,	*Los Angeles*	10
Wrigley, G. C.,	*Sonora*	24
Wrinkle, G. S.,	*Talmage*	12
Wyatt, L. C.,	*Moorpark*	37
Wyckoff, H. A.,	*San Francisco*	23
Wyers, R. E.,	*Spadra*	10
Wylie, C. A.,	*San Bernardino*	21
Wymore, W. W.,	*San Francisco*	23
Wynns, H. LeR.,	*Berkeley*	1

— Y —

NAME	CITY	COUNTY SOCIETY NO.
Yabroff, S. W.,	*Oakland*	1
Yaker, D. N.,	*Los Angeles*	10
Yamao, E.,	*Walnut Grove*	19
Yeagle, R. P.,	*Santa Ana*	16
Yerxa, C. W.,	*Los Angeles*	10
Yoakam, F. A.,	*Moorpark*	37
Yocum, F. W.,	*San Luis Obispo*	25
Yoder, E. H.,	*Los Angeles*	10
Yoell, R. A.,	*San Francisco*	23
Yost, F. O.,	*Los Angeles*	10
Young, C. S.,	*Los Angeles*	10
Young, D. D.,	*Los Angeles*	10
Young, E. N.,	*San Diego*	22
Young, F. B.,	*Long Beach*	10
Young, F. W.,	*Los Angeles*	10
Young, J. H.,	*San Diego*	22
Young, J. W.,	*Beverly Hills*	10
Young, M. L.,	*Los Angeles*	10
Young, N. A.,	*Huntington Park*	10
Young, W. L.,	*Santa Cruz*	29

— Z —

NAME	CITY	COUNTY SOCIETY NO.
Zaiser, H. E.,	*Orange*	16
Zanger, H. G.,	*San Jose*	28
Zaring, B. K.,	*Columbus, Indiana*	10
Zeff, M. G.,	*Berkeley*	1
Zeiler, A. H.,	*Los Angeles*	10
Zeiler, J.,	*Los Angeles*	10
Zeimer, I. S.,	*Stockton*	24
Zelinsky, F.,	*Los Angeles*	10
Zieber, R. L.,	*Santa Rosa*	33
Zimmerer, S. R.,	*Mecca*	18
Zimmerman, H.,	*Sacramento*	19
Zimmermann, W. T.,	*Los Angeles*	10
Zirker, D. W.,	*Merced*	13
Zirkle, T. I.,	*Loma Linda*	21
Ziskind, E.,	*Los Angeles*	10
Zobel, A. J.,	*San Francisco*	23
Zochert, L. W.,	*La Mesa*	22
Zombro, F. B.,	*Los Angeles*	10
Zorb, G. A.,	*Los Angeles*	10
Zumwalt, E. R.,	*Tulare*	36
Zumwalt, F. H.,	*San Francisco*	23
Zumwalt, R. S.,	*San Francisco*	23

II. ASSOCIATE MEMBERS

NAME	CITY	COUNTY SOCIETY NO.
Cummins, W. T.,	*San Francisco*	23
Godfrey, E. B.,	*San Bernardino*	21
Leake, C. D.,	*San Francisco*	23
Mosher, C. D.,	*Stanford University*	28
Rusk, G. Y.,	*San Francisco*	23
Weiss, C.,	*San Francisco*	23

III. HONORARY MEMBERS

NAME	CITY	COUNTY SOCIETY NO.
Gill, A. F.,	*Banning*	10
Goodenow, N. H.,	*Monrovia*	10
Harris, H.,	*San Francisco*	23
Hermann, A. J.,	*Los Angeles*	10
Kalb, G. B.,	*Monrovia*	10
Kellogg, F. B.,	*Santa Monica*	10
King, J. C.,	*Riverside*	18
Lilienerantz, A.,	*Oakland*	1
Perry, W. F.,	*Los Angeles*	10
Sanders, A. O.,	*San Francisco*	10
Shawhan, R. C.,	*Otten, N. C.*	10
Sill, E. R.,	*Oakland*	1

IV. RETIRED

NAME	CITY	COUNTY SOCIETY NO.
Allen, F. M.,	*San Diego*	22
Baker, C. Le B. J.,	*Point Loma*	22
Baker, F.,	*Point Loma*	22
Baumeister, E. E.,	*San Francisco*	2
Bogue, H. A.,	*Ontario*	21
Browning, C. C.,	*Los Angeles*	10
Bryan, E. H.,	*Penryn*	17
Clark, J.,	*Gilroy*	28
Cohn, D.,	*San Francisco*	23
Davis, B.,	*Los Gatos*	13
DePuy, E. S.,	*Oakland*	1
Doig, R. L.,	*San Diego*	22
Dunsmoor, N. C.,	*Los Angeles*	10
Evans, G. H.,	*Berkeley*	23
Frederick, M. W.,	*Brentwood*	23
Gatchell, W. LeF.,	*Chico*	2
Goodman, E.,	*San Francisco*	23
Goodridge, H. A.,	*San Jose*	28
Gray, F. P.,	*San Francisco*	23
Grissim, J. D.,	*Oakland*	1
Gunn, Herbert,	*San Francisco*	10
Henderson, J. J.,	*San Francisco*	23
Hogan, J. J.,	*Vallejo*	23
Jean, G. W.,	*Santa Barbara*	27
Kahn, A. J.,	*Los Angeles*	23
Livingston, W. R.,	*Oxnard*	37
Lorini, R.,	*Paris, France*	22
MacDonald, E. A.,	*Beverly Hills*	21
MacLaughlin, W. E.,	*Los Angeles*	10
March, W. B.,	*Burson*	24
McClenahan, H. C.,	*San Francisco*	23
McDaniel, J. L.,	*San Fernando*	10
McKee, A. B.,	*Redwood City*	23
McVey, C. L.,	*Oakland*	1
Melvin, J. T.,	*Porterville*	36
Newman, H. P.,	*San Diego*	22
Pope, E. W.,	*San Francisco*	23
Power, H.,	*Palo Alto*	28
Richter, C. M.,	*San Francisco*	23
Rothganger, G.,	*Oakland*	1
Siebe, E. B.,	*San Francisco*	23
Simmons, G. C.,	*Inverness*	19
Smith, J. F.,	*San Francisco*	23
Somers, H.,	*Morgan Hill*	23
Spencer, J. C.,	*Palo Alto*	23
Spriggs, G. A.,	*Lomita*	23
Taylor, M. C.,	*Martinez*	24
Vecki, V. G.,	*San Francisco*	23
Wall, A. S.,	*Los Angeles*	10
Waller, J. L.,	*San Francisco*	23
Ward, M. W.,	*Woodland*	38
Waterman, H. J.,	*Berkeley*	23
Wheeler, J. S.,	*Santa Cruz*	17
Whiffen, R. A.,	*San Jose*	28
Williams, E. H.,	*San Francisco*	23
Winslow, T. H.,	*Oakland*	1
Worthington, G. B.,	*San Diego*	22
Yager, W. L.,	*Los Angeles*	10
Yates, E. M.,	*Santa Rosa*	33

* Deceased.

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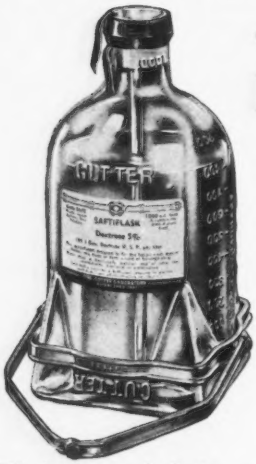

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